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GREAT LAKES WATER QUALITY ISSUES

(101-67)

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

MAY 2, 1990

Printed for the Use of the Committee on Public Works and Transportation

U.S. GOVERNMENT PRINTING OFFICE

36-202 WASHINGTON : 1991

For sale by the Superintendent of Documents, Congressional Sales Office
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CONTENTS

TESTIMONY

	Page
Adamkus, Valdas V., Great Lakes National Program Manager, Regional Administrator, U.S. Environmental Protection Agency, Region V, accompanied by Carol Finch, Director, Chicago Office	12
Banks, R. Darryl, deputy commissioner, New York State Department of Environmental Conservation	27
Colburn, Theo, senior fellow, Conservation Foundation, accompanied by Richard Liroff, senior associate, project director	38
Durnil, Gordon K., Chairman, United States Section, International Joint Commission, accompanied by David La Roche, Secretary, United States Section, and Michael Vechsler, senior advisor, Canadian Section	4
Eder, Tim, water quality standards project manager, Great Lakes Natural Resources Center, National Wildlife Federation	38
Gritman, James C., Regional Director, U.S. Fish and Wildlife Service, Region III, accompanied by T.J. Miller, biologist	12
Snyder, J.D., director, Office of Great Lakes, Michigan Department of Natural Resources, accompanied by Dina Klemans, remedial action plan coordinator	27
Weller, Philip E., executive director, Great Lakes United	38

STATEMENT SUBMITTED BY MEMBER OF CONGRESS

Upton, Hon. Fred, a Representative in Congress from Missouri	9

PREPARED STATEMENTS OF WITNESSES

Adamkus, Valdas V	61
Banks, R. Darryl	102
Colburn, Theo, Ph.D	112
Durnil, Gordon K	122
Eder, Tim	134
Gritman, James C	200
Snyder, J.D	205
Weller, Philip	215

SUBMISSIONS FOR THE RECORD

Hammerschmidt, Hon. John Paul, a Representative in Congress from Arkansas, statement	2
Weller, Philip E., executive director, Great Lakes United, statement of the Lake Michigan Federation	43

ADDITIONS TO THE RECORD

Burney, Hon. D.H., Canadian Ambassador—A Status Report—Canadian Federal funding for Great Lakes/St. Lawrence River programs	222
Water Pollution Control Federation, Dr. Joseph M. O'Connor, senior scientist, Aquatic Habitat Institute, statement	236

GREAT LAKES WATER QUALITY ISSUES

WEDNESDAY, MAY 2, 1990

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES,
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2253, Rayburn House Office Building, Hon. Henry J. Nowak, Chairman, presiding.

Mr. NOWAK. Good morning. The subcommittee will come to order.

This morning the Subcommittee on Water Resources meets to receive testimony relating to issues of Great Lakes water quality. Over the past two years this subcommittee has devoted much time and attention and held several hearings on matters relating to the Great Lakes. The subcommittee has had hearings on atmospheric deposition and contaminated sediments in the Great Lakes, the high water levels in the mid-1980s, and the implementation of the Great Lakes Water Quality Agreement.

Today we will focus on water quality and the relationship between contaminants in the lakes and the health of the region's residents. Recent scientific studies indicate that even at low levels, the contaminants in the lakes impair both human and wildlife health. Several of our witnesses today have written reports based on these studies.

We will also receive testimony on H.R. 4323, the Great Lakes Water Quality Improvement Act of 1990. This bill responds to recent studies by focusing on improving methods to reduce the amount of pollution entering the lakes and to clean up those pollutants already there. One of the most important tools we have to help us toward these goals is the Great Lakes Water Quality Agreement.

While the Agreement is lauded as a strong framework for cooperative international, Federal and State restoration efforts, implementation of the Agreement has been slow. To accelerate efforts under the Agreement, this bill would incorporate some of the Agreement's provisions into U.S. domestic law and increase financial resources both to the Federal Government and to the States.

The Great Lakes are a very important resource to this country. If you live in New York, or Michigan, or any of the States bordering the lakes, their significance is obvious. The Lakes have been the centerpiece of development of the midwestern States. However, the health of the Lakes also has bearing on the Nation as a whole. For as we have seen with increasing regularity, the health of one

part of the environment affects the health of all the other parts. Pollutants cycle throughout the ecosystem irrespective of any geopolitical boundaries.

I am pleased to have testifying before us today representatives of the Federal Government, States, and the environmental community who have been involved with the Great Lakes Water Quality issues and the implementation of the Great Lakes Water Quality Agreement.

Before we begin with our first witness, I would like to yield to my colleague from Minnesota, the ranking Republican Member of the subcommittee, Arlan Stangeland, for whatever opening remarks he wishes to make.

Mr. Stangeland?

Mr. STANGELAND. Thank you, Mr. Chairman. Before I begin, I ask unanimous consent to place in the record the statement of the Honorable John Paul Hammerschmidt.

Mr. NOWAK. Without objection, so ordered.

[Mr. Hammerschmidt's statement follows:]

STATEMENT OF HON. JOHN PAUL HAMMERSCHMIDT

Today our subcommittee will examine the issue of water quality in the Great lakes.

In the past two decades, much effort and billions of dollars have been devoted to the cause of cleaning up the Greak Lakes. Many of these efforts have not been in vain. Phosphorus discharges and certain other high-profile chemicals have been greatly reduced and there has been recovery of some wildlife species in the area.

No one will deny, however, that much work still remains to be done before the Great Lakes are clean and safe to human health.

In the International Joint Commission's fifth biennial report, they stated that there still exists threats to human health and the environment posed by persistent toxic substances in the water of the Great Lakes.

The IJC also reported that although some of the goals and objectives of the Great Lakes water quality agreement signed by the Governments of the United States and Canada have been met, there still remains much work to be done in this area.

I hope that our subcommittee will receive valuable testimony today that helps us to improve upon the Great Lakes water quality agreement and offers viable solutions to restore the Great Lakes' water quality.

I would especially like to thank the Chairman, Mr. Nowak, for holding these hearings and for introducing his bill H.R. 4323, the Great Lakes Water Quality Improvement Act of 1990.

I look forward to working with Mr. Nowak and the rest of the subcommittee on this important matter.

Mr. NOWAK. Please proceed.

Mr. STANGELAND. Thank you, Mr. Chairman. The subcommittee meets today to receive testimony on the Great Lakes water quality, as you have said, and in particular, on H.R. 4323, the Great Lakes Water Quality Improvement Act of 1990. The Public Works Committee and this subcommittee have held several hearings on Great Lakes water quality in recent years, focusing on, among other things, persistent toxics, airborne toxics, contaminated sediments, and implementation of the Great Lakes Water Quality Agreement and various provisions of the Clean Water Act, Superfund, and the Corps of Engineers authorities.

Today's hearings should involve the same issues, in addition to focusing specifically on H.R. 4323. This bill, referred solely to this Committee, seeks to improve implementation of the Great Lakes Water Quality Agreement and Section 118 of the Clean Water Act

by requiring cleanup deadlines, lake-wide management plans, water quality criteria, extended monitoring, and increased funding.

Let me commend you, Mr. Chairman, for your leadership on this initiative. As you know so well, the Great Lakes can become natural sinks for all kinds of pollutants, toxics enter the lakes from various mediums—municipal and industrial point sources, rural and urban nonpoint sources, combined sewer overflow, groundwater, landfill seepage, sediments, and atmospheric deposition.

In its 1990 report, the IJC calls for immediate action to implement and coordinate strategies to combat persistent toxics, oil spills and exotic species. The Conservation Foundation also highlights problems in its recent report, the "Great Lakes—Great Legacy?" The needs are obvious. Our challenge is to come up with innovative, workable solutions, while recognizing serious funding constraints.

Today's hearing of the subcommittee on coastal pollution and contaminated sediments should help, however, and I thank you and look forward to hearing from our witnesses.

Mr. Chairman, I have to tell you that the Agriculture Committee begins its markup on the 1990 Farm Bill today. Unfortunately, I will not be able to sit through all of this hearing. We will have members of the subcommittee on this side who will be here, and certainly all the witnesses' testimony will be considered. We will give recognition to your leadership.

Thank you.

Mr. NOWAK. Thank you very much.

As has been mentioned, we have several hearings and communications today, trying to bring together the various initiatives in this whole area, as we make progress toward the implementation of the Water Quality Agreement, it gets more and more complex. I think with cooperation and certainly the new focus on the Clean Air Bill in this session, we will be able to turn both the Congress and the Administration's attention to these water quality issues. Certainly this is one of the major initiatives we hope to approve this year.

We have done so with the cooperation of many of the people who are going to be testifying today as to the changes and redirection and perhaps clarification which should go into a bill which proves that stated progress. We want to thank those who participated with the subcommittee members and staff and focus on these hearings.

Certainly one of the agencies which has had and will continue to have a large presence in scoping in which direction the Great Lakes will be moving has been the International Joint Commission. It certainly has a new bright light as its chairman, and I want to invite at this time from the International Joint Commission—I think it is their first presence here, and that indicates by itself the kind of awareness the Commission has taken on.

I hope we can encourage them to continue that kind of new enlightenment. I want to invite the new Chairman, who has been in large part responsible for that new focus, Mr. Gordon K. Durnil, a Chairman of the United States International Joint Commission.

Gordon, if you will take one of the seats, we will incorporate your testimony totally into the record, and we want to commend

you for your leadership in the months since you have been named chairman.

TESTIMONY OF GORDON K. DURNIL, CHAIRMAN, UNITED STATES SECTION, INTERNATIONAL JOINT COMMISSION, ACCOMPANIED BY DAVID LaROCHE, SECRETARY, UNITED STATES SECTION AND MICHAEL VECHSLER, SENIOR ADVISOR, CANADIAN SECTION

Mr. DURNIL. Thank you, Mr. Chairman. I will just give parts of my complete statement here today.

I am the Chairman of the United States Section of the International Joint Commission. Accompanying me today is the Secretary of the United States Section of the Commission, David LaRoche, and Michael Vechsler, a Senior Advisor in the Canadian Section of the Commission, in Ottawa, Ontario, Canada. Mr. Vechsler's presence here today underscores the binational character that the International Joint Commission has sustained since its creation in 1909.

As you know, Mr. Chairman, under the Great Lakes Water Quality Agreement, the Commission is charged with monitoring progress being made by the United States and Canada in meeting the purpose and the general and specific objectives of the Agreement. Indeed, we are required to report to Federal, State and provincial governments no less frequently than biannually concerning progress toward the achievement of the general and specific objectives of the Agreement.

Three weeks ago, the Commission issued its fifth biannual report. In that report, we concluded, among other things, that based upon available data, the health of our children is threatened as a result of our exposure to persistent toxic substances, even at very low ambient levels, and that it would be imprudent not to take immediate action.

The data we examined included findings that 16 Great Lakes wildlife species near the top of the food web had suffered reproductive problems or declines in population and that consumption of certain Great Lakes fish posed a threat to women of childbearing age who pass these toxic substances on to their offspring. The Commission also encouraged additional research to determine the precise magnitude of that threat.

The Commission used unusually strong language in its report in an attempt to forcefully communicate what we perceive to be the seriousness of the threat and the need for all segments of society to contribute to solutions. We pointed out that despite the significance of the Great Lakes and our collective rhetoric to restore and enhance them, we as a society continue to mortgage their future by poisoning, suffocating and otherwise threatening them. Further, Mr. Chairman, we concluded that what our society has failed to realize is that what we are doing to the Great Lakes, we are doing to ourselves and to our children.

These conclusions provided a basis for the Commission's recommendation to the governments of the United States and Canada that they review and strengthen all Great Lakes fish consumption

advisories, and reevaluate stocking programs for those fish which also carry advisories for human consumption.

We also recommended that they incorporate the principle of reverse onus into regulatory policies and programs by mandating pretesting of new chemicals to determine their potential harm to the environment or human health, prior to their approval for production or use; that they define how the 11 critical pollutants identified for our Water Quality Board are used, stored and released in the Great Lakes Basin Ecosystem by nonpoint rural and urban sources, and outline measures that have been and will be taken to prevent their further release into the Lakes, and report on the extent to which these pollutants have been explicitly considered in discharge permits to give assurance that no such discharges are permitted.

We recommended that they designate Lake Superior as a demonstration for zero discharge where no point source discharges are allowed for any persistent toxic substances; that they incorporate the Great Lakes ecosystem as a priority topic in school curricula throughout the basin and beyond, to ensure that our children understand the importance of a healthy Great Lakes ecosystem to our future; and that they fully inform and involve local governments to ensure they accept responsibility to assist in Agreement implementation.

Mr. Chairman, these are some of the highlights of our report. I would be happy to make formally available a copy of our report, if you would like to include it in the record of these proceedings. This appearance, as you know, is quite an unusual undertaking for the Commission. Being a binational organization and working by consensus as we do, we have as a general matter avoided commenting on the specifics of legislative proposals on either side of the boundary, either at the Federal or jurisdictional level.

But the Commission sees a need to make legislation compatible with the Agreement as being so important to implementation that we decided to appear here today.

The legislation which is the subject of this hearing has among its purposes several which track very closely the Commission's observations and concerns found in our Fifth Biennial Report. These include making adherence to the Agreement an end point in the work of government agencies, improved accountability of various agencies involved in Agreement-related work, and the need to promote a better understanding of the effects of toxic pollutants on the Great Lakes ecosystem, and the food chain in the Great Lakes, and the implications of such effects on human health.

The latter point is an important one, for we are now confronted with the knowledge that living organisms in the Great Lakes Basin are not only vulnerable to persistent toxic chemicals because of their carcinogenic and mutagenic effects, but other more subtle diseases, and dysfunctionality outcomes, some of which include deformities, metabolic changes, behavioral and hormonal changes, and immunosuppression.

Timely implementation of remedial action plans, another area of emphasis in the Commission's report, is also a feature of your legislation.

In its report, the Commission spoke very strongly of the need to take immediate actions to prevent releases of persistent toxic contaminants to the Great Lakes-St. Lawrence River Basin ecosystem, of ways to assist people in avoiding their exposure to persistent toxic contaminants, and the need for programs to remediate areas degraded by the presence of persistent toxic contaminants. These Commission views as expressed in its Fifth Biennial Report are very consistent with the purposes and a number of the programs called for in your legislation.

We are delighted to see this activity in the legislative arena, and we are hopeful that this legislative activity, coupled with Federal agency and jurisdictional response to the problems of the Lakes will result in an expedited effort to remediate what the Commission considers to be a threat to the health of our children posed by the presence of persistent toxic contaminants in the Great Lakes Basin system.

I feel that my statement here this morning would be incomplete if I did not add some remarks regarding what I consider to be the importance of the resource we are talking about today. There is no question that the Great Lakes are a unique national and international natural resource. The Lakes contain 90 percent of surface fresh water supplies for North America. The Basin is not only home for over 40 million people, it is also the heart of North American industry, as well as a superb recreational resource for citizens of both countries.

This already invaluable fresh water resource has become even more valuable to the United States and Canada as other sources of surface and groundwater are depleted. The continued peaceful shared use and coordinated concern over the future of these waters serve as a model of international cooperation for the rest of the world to follow.

Mr. Chairman, the Great Lakes system does not exist as a group of isolated lakes. The slow-paced but determined flow of the Upper to the Lower Lakes means that the actions of one will someday impact upon its neighbor, and upon its neighbor, and so on throughout the system. Our countries must understand that contamination does not recognize international borders. We must honor our obligations under the Boundary Water Treaty of 1909 and the 1978 Great Lakes Water Quality Agreement. And we must preserve for future generations of Americans and Canadians what is truly a magnificent natural resource.

Thank you, Mr. Chairman.

Mr. NOWAK. Thank you.

If we could focus on a couple of the statements that were issued in your report—you mentioned the health effects. I think the health effects on birds and so on that have been brought before the public's attention by various groups that are working on these problems has been very evident. You mentioned the connection with health of our citizens. I wonder if you could generally give us some insight as to what your review showed, and how that brought you to the conclusion that there is a larger problem than had been focused on in the past.

Mr. DURNIL. The real expert you should hear from is here behind me, I am sure she can delve into that with a great deal more

detail. Our science advisory board and our water quality board have been advising us for a number of years, providing us with the information on wildlife and other forms of life. Humans are just one part of that web. We tend to talk in terms of webs and food chains, or whatever. Humans are a part of that. There is no reason to presume that what affects wildlife does not affect humans as well.

There are limited studies—there is one study on the Great Lakes Basin and humans, a follow-up study on that. The presumption has to be that humans are affected. We cannot afford to make any other presumption.

Mr. NOWAK. The statement on page 10 where you mention that the Commission sees a need to make legislation compatible with the Agreement as being important to implementation as one of the reasons you decided to appear today—I would hope that this becomes a regular kind of visit, and that we could have the opportunity to more closely perhaps track each other's work as we go along. I visualize that as being the only way we are going to get both governments here to look at the holistic angle on the ecosystem, and take a very broad view, because of the nature of the Great Lakes and the fact that if you put a glass of water in Duluth, it would take some 205 years for that water to flow over Niagara Falls.

We realize the flow rate and we also know, as you correctly pointed out, the huge amounts of various contaminants entering the system from various sources. If we don't take that holistic look, we are missing out on the opportunity to provide the Nation and perhaps the world with a model of how these kinds of basins can be improved.

At the Water Alliance dinner last night, we had one of the speakers refer to the problems in Europe, and the vast amount of pollution that they have in terms of drinking water. They have to pay a tremendous amount of attention, because the system before just didn't do it.

Hopefully we can use your material and certainly we will want to incorporate into the record your report for everybody's use on this Water Committee as we start to develop this legislation. We thank you.

Mr. DURNIL. I want to say one final thing, and that is that as we began drafting the report, we were thinking in terms of a golf analogy of par, Prevention Avoidance Remediation of toxics, and we wrote the report almost entirely about prevention. Somewhat relevant to this process, it seems to me that we spend a lot of time talking about remediation, and we need to spend more time talking about prevention, stopping pollution.

Mr. NOWAK. Let me turn to Arlan Stangeland for any questions he may have.

Mr. STANGELAND. Thank you for being here, Mr. Durnil. It certainly does not do much good to remediate unless you start to prevent. We are trying to take some remedial action, while at the same time we have evidence that we are continuing to pollute. That has to stop if at all possible.

I have just one question. There has been some criticism of our Government's and Canada's failure to act quickly to work on im-

proving the water quality through the Water Quality Agreement. Can you tell the subcommittee some of the obstacles you have seen that have prevented the two countries from carrying out that mandate, and what recommendations you have for more quickly carrying out that mission?

Mr. DURNIL. We are not trying to be critical of what any one segment of government or industry or whatever has done in the past. We hope we can go in the future.

Mr. STANGELAND. We will take it as your constructive criticism.

Mr. DURNIL. There are obviously some people behind me who have worked very hard on this process for a long time and have some good suggestions. I think probably the primary thing that we talk about here is incorporating the principles and objectives of the Agreement into law at the Federal levels but also at the State and provincial levels. If we could do that, and have some more uniform water quality rules, for example, and various other rules that are consistent with the Agreement, and permitting rules that are consistent with the objectives of the Agreement, that would be a great step forward.

Mr. STANGELAND. Thank you very much.

Mr. NOWAK. Thank you.

Now let me turn to Ms. Molinari from New York.

Ms. MOLINARI. I have no statement.

Mr. NOWAK. Mr. Upton from Michigan?

Mr. UPTON. Thank you. I am sorry that I was late getting here. I would like to ask unanimous consent to insert my statement as part of the record.

Mr. NOWAK. Without objection, so ordered.

[Mr. Upton's prepared statement follows:]

STATEMENT OF CONGRESSMAN FRED UPTON BEFORE THE

WATER RESOURCES SUBCOMMITTEE OF THE

PUBLIC WORKS AND TRANSPORTATION COMMITTEE

HEARING ON GREAT LAKES WATER QUALITY

MAY 2, 1990

I would like to begin by commending Chairman Nowak for convening this hearing today. As a lifetime resident of the Lake Michigan shore, I am profoundly concerned about the state of our Great Lakes.

The freshwater seas of North America may be cleaner today than they were 20 years ago, but point and non-point sources of pollution continue to endanger the well-being of millions of Americans who drink, fish or swim in our Great Lakes.

In the last two decades, we have made great strides in addressing many of the sources of pollution affecting the Lakes. But pollution remains and these continuing sources of pollution will be much more difficult to correct. These sources range from city street and farmland runoff to air deposition and contaminated sediments.

According to recent reports by the International Joint Commission and the Conservation Foundation, there is much that remains to be done. Both reports offer dire warnings on human harmful exposure to toxins in the Great Lakes. Obviously, this is a problem that will not soon go away. Our challenge is to find reasonable solutions to the remaining pollution problems in the near future.

I realize that we have a tight budget and we will need to exercise considerable fiscal restraint this year. But when it comes to the environment, attempts at short-term savings can be disastrous and almost always more costly in the long-run.

Thank you, Mr. Chair.

Mr. UPTON. Thank you very much, Mr. Durnil. Although I missed much of your verbal remarks, I was able to read your written statement. I note that there is quite a bit of emphasis on water quality, that is clearly the focus of this hearing, as well as the toxic spills and your monitoring of that. On pages two and three of your statement you indicate that the Commission serves as an advisory body investigating and making recommendations on matters referred to it by both the U.S. as well as the Canadian Government, and the IJC serves a very important function in that regard.

I have been a member of the U.S.-Canadian Interparliamentary Group for the last couple of years. At last year's forum I participated in discussions on water quality in the Great Lakes. Everyone at the meeting hailed the fine work of the IJC.

As you may know, there is legislation now in conference between the House and Senate with regard to an oil spill bill that passed both bodies last year. The reason why I am a member of the conference, is to try to establish an oil spill response team on the Great Lakes, something that was included in the scope of the legislation.

Mr. Nowak and Mr. Stangeland and myself and others circulated a letter among the conferees asking for their support for establishing an oil spill response team in the Great Lakes. I am wondering if the Commission has taken a stand, or if you might be able to provide our arsenal with more ammunition that we might convince some of our colleagues on the conference that an oil spill response team on the Great Lakes would be well deserved.

Mr. DURNIL. We did deal with shipping and oil spills and land based spills in our report, and made a number of recommendations that sound similar to what you are describing, and with a little bit more authority perhaps of the two Coast Guards, in tracking hazardous shipping. I understand, and have been told that the majority of the spills are land based spills. As inspection of those sites goes down, the spills go up. Obviously, an inspection team or a team is aware of that would be helpful.

We have made some recommendations on that.

Mr. UPTON. Thank you.

Mr. NOWAK. Thank you very much. Again, I want to thank you for taking this time. I know it was on short notice that you were invited, but I really believe your organization can play a motivator's role here in discussing, as you did in your report, and coming before not only the legislative body here in the U.S., but also in Canada. I think that will go a long way in focusing the amount of attention that is needed for us to be able to move legislatively and really complement your efforts and your goals as they were so well stated in your report.

We are looking forward to using your good offices as a great resource. Again, because of the expert nature of your testimony and consideration, I am sure the Administration will focus on this issue also, and in terms that we can finally move forward with the type of work that will be necessary for us to make some progress instead of just holding the system at its present level of pollution.

Once again, thank you very much, and we look forward to working with you and your group.

Mr. DURNIL. Thank you.

[Mr. Durnil's prepared statement appears on page 122.]

Mr. NOWAK. Our next witnesses will come from the Federal agencies. We will have from the Environmental Protection Agency Mr. Valdas V. Adamkus, who is the Great Lakes National Program Manager, Regional Administration of Region V in Chicago, Illinois. He is accompanied by Carol Finch, who is the Director of the Great Lakes National Program Office.

We will be joined by another Federal agency, the U.S. Fish and Wildlife Service, represented by Mr. James C. Gritman, who is the Regional Director of Region III, located in Twin Cities, Minnesota.

We will then have the State agencies as a panel and the environmental organizations listed as a panel after the State agencies testify.

Welcome before the subcommittee, and we want to again state for the record that your statements in total will be incorporated in the record, and you may proceed as you desire.

Mr. Adamkus?

TESTIMONY OF VALDAS V. ADAMKUS, GREAT LAKES NATIONAL PROGRAM MANAGER, REGIONAL ADMINISTRATOR, REGION V—CHICAGO, IL, ACCOMPANIED BY CAROL FINCH, DIRECTOR, CHICAGO OFFICE; JAMES C. GRITMAN, REGIONAL DIRECTOR, U.S. FISH AND WILDLIFE SERVICE, REGION III—TWIN CITIES, MN, ACCOMPANIED BY T.J. MILLER, BIOLOGIST

Mr. ADAMKUS. Thank you, Mr. Chairman. Good morning, ladies and gentlemen.

I am Valdas V. Adamkus, United States EPA's National Program Manager for the Great Lakes National Program. With me is Carol Finch, the Director of that office in Chicago. Mr. Chairman, with your permission, I would like to invite the Acting Water Division Director of the EPA office who is responsible for the water programs which are contributing to the Great Lakes issues in case you have any specific questions, Mr. Dale Bryson.

Mr. NOWAK. That would be fine.

Mr. ADAMKUS. We are definitely very pleased to be here today and share with you the concerns of the Great Lakes and I will highlight from our remarks to you, Mr. Chairman, the efforts and progress of our work on the Great Lakes, and plans which we are implementing to meet the Great Lakes Agreement and commitments.

I will touch on the Great Lakes Advisory Committee efforts in implementing the Agreement, then the status of the Great Lakes Water Quality initiative. I will also discuss the progress of the assessment and remediation of contaminated sediments program, remedial action plans and lakewide management plans. I will start with the Great Lakes Advisory Committee.

Definitely the health of the Great Lakes has been a priority for years. Significant progress has been made, yet much remains to be done. Pollutants are entering the Great Lakes ecosystem from a number of pathways, including air deposition, point and nonpoint sources, and Superfund sites. To address the loading problems in the Great Lakes and the interdependent nature of the ecosystem, we are adjusting our media-by-media regulatory orientation in favor of the integrated management approach.

Much of the challenge in this effort is ensuring that an agency-wide, multi-media perspective is brought to bear on all Great Lakes policy issues. To help accomplish this, changes are being made in the Great Lakes Advisory Committee, which we call GLAC.

GLAC is the EPA's internal coordination mechanism which provides advice to the Agency's Great Lakes National Program Office on policy issues affecting the Great Lakes Basin. On April 18, 1990, Administrator Reilly issued a memorandum to the senior staff at EPA. In his memorandum, Mr. Reilly stated that the membership of the Great Lakes Advisory Committee will be expanded to include all assistant administrators, deputy administrators, and their other senior members.

He indicated that EPA Deputy Administrator, Mr. Hank Habicht, is going to chair the Committee. This is what I would call really quite an effort on the Administration's part to highlight and provide priority to the Great Lakes issues.

This coordinated multi-media approach within EPA will complement the efforts of the U.S. Policy Committee which GLNPO chairs. The U.S. Policy Committee is the consortium of Federal agencies, States and EPA regions dedicated to implementing the Agreement. GLAC and the U.S. Policy Committee are complementary and will aid in fully addressing environmental problems in the Great Lakes. I am sure this kind of attention will enhance our work on the Great Lakes.

I would like to focus on some of the individual instruments we use for that work, specifically the Great Lakes Water Quality Initiative. Under the Agreement, the U.S., as a signatory party, commits itself to the objective of restoring and maintaining the chemical, physical and biological integrity of the waters of the Great Lakes ecosystem. Implementation of the Agreement has been hindered by lack of consistent water quality criteria and guidance specific for the Great Lakes Basin.

The Great Lakes Water Quality Initiative represents a significant effort on the part of the United States EPA to move forward with implementation of the Agreement by utilizing the existing authorities of the Clean Water Act. The initiative is designed to assure a more consistent approach to meeting the obligations of the United States under the Agreement, ensure appropriate public participation in decision making processes related to the Agreement, and to provide a sound basis for negotiating water quality objectives and programs with Canada.

The key to improving implementation of the Great Lakes Agreement is the development of technically sound Great Lakes Water Quality guidance, which States can use in reviewing and revising their water quality standards. Under the initiative, guidance specifically designed for the Great Lakes Basin will be developed, include guidance specifically for water quality criteria for human health, aquatic life and wildlife; implementing procedures; and anti-degradation policy.

We hope to have the Great Lakes specific guidance ready for the Great Lakes States to use in reviewing and revising their water quality standards in the next triennial review ending in 1993. This is a highly ambitious time frame, but the States have agreed to use

completed products of the initiative once those products are approved by the Steering Committee.

Another vehicle would be assessment and remediation of the contaminated sediments. The 1987 Amendments to the Clean Water Act authorized GLNPO to coordinate and conduct a five-year study and demonstration project relating to the control and removal of toxic pollutants in the Great Lakes, with emphasis on the removal of the toxic pollutants from bottom sediments. This efforts has been named the Assessment and Remediation of Contaminated Sediments Program, or ARCS.

The Clean Water Act identified five areas to receive priority consideration, and they are Saginaw Bay, Sheboygan Harbor, Grand Calumet River, Ashtabula River, and the Buffalo River.

The final report for the ARCS program will be available in December of 1992. This will include guidance on how to conduct assessment of freshwater contaminated sediment problems, guidance on remedial alternatives, and tools to assist decision makers in evaluating alternatives. This will be closely coordinated with the overall Agency sediment strategy development, and with existing programs such as the Clean Water Act Section 404 dredging program.

The Remedial Action Plans—I must admit this is my favorite subject because I am really learning how to deal with the problems—is actually the instrument to define the actions and the timetable to restore all the impaired beneficial uses identified in the Area of Concern. We have 42 of them, 25 are on the U.S. side, five are shared with the Canadians, and seven of them are actually Canadian responsibility. We are recommending at the present time to add one more area of concern, Erie Harbor in Pennsylvania. That would be 43 altogether.

Under the Agreement, the development of remedial action plans is a State activity. There is definitely a strong Federal role in it. The Great Lakes National Program Office has a review and oversight role, coordinating between the three EPA regions in the Great Lakes Basin. RAPs are submitted to the International Joint Commission for review and comment at three stages—when the definition of the problem has been completed; when remedial and regulatory measures have been selected; and when monitoring indicates that impaired beneficial uses have been restored.

In the past 12 months, the States have submitted three Stage I Remedial Action Plans. Two of the three submissions were from New York, the third was from Wisconsin. The Buffalo River RAP was also submitted for Stage II review. All three RAPs are now undergoing Water Quality Board review.

GLNPO now expects the States to complete 12 Stage I RAPs in the next 12 months. I personally believe this is a very ambitious undertaking. I have some doubts that we will be able to deliver, but we are going to do our best to have those RAPs completed.

Three of the Stage I binational RAPS—the Detroit, St. Marys and St. Clair Rivers—are somewhat behind schedule because of the delays of our Canadian partners.

By the end of calendar year 1991, all but two Stage I RAPs are expected to have been submitted to the IJC. It is important to note that while RAP development is proceeding, remedial actions have

not been delayed and cleanup is moving ahead under ongoing programs such as Superfund and NPDES. The Stage II submissions are much more uncertain, and generally are now scheduled for submission until the Stage I RAPs are completed.

Another area is lakewide management plans. The U.S. and Canada agreed on a policy framework for the lakewide management plans in October of 1989. Our office will be drafting further guidance in terms of lakewide management plan review criteria, which will be coordinated with the regions, circulated to the States for comments, and discussed with Canada. The target dates for final Lakewide Management Plan Review Criteria is June of this year.

The Great Lakes National Program Office is working with EPA Region II to develop the Lake Ontario Toxic Management Plan into a Lakewide Management Plan. At the same time, Region V has focused its attention on expanding the Lake Michigan Toxics Reduction Strategy.

The Agency, under GLNPO lead, has developed a draft Great Lakes Basin Work Plan which delineates the activities required for implementing the Agreement and who is responsible for carrying them out. We intend to expand this effort next fiscal year to incorporate other Federal and State Great Lakes activities, including Remedial Action Plan implementation and Lakewide Management Plan Development.

I would like to conclude by saying that a lot of effort has been put into the development of the plans and strategy, a lot has been done, but we have still a long way to go. We are determined to do our best in cooperation with the International Joint Commission, our Canadian counterparts, and definitely pooling all available resources throughout the EPA, including all Federal agencies.

That concludes my remarks. The total report has been submitted.

Mr. NOWAK. Thank you very much.

We will hear from Mr. Gritman before we go into a question period.

Mr. Gritman?

Mr. GRITMAN. Thank you, Mr. Chairman. I am pleased to be here today.

My region consists of eight States: Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana and Ohio. You can see we have a great interest in the Great Lakes.

With me today is T.J. Miller, our contaminant biologist. In case there are any technical questions, I am sure he can answer them.

Other Service employees have testified before this committee on some of our efforts to assess the effects of contaminants on fish and wildlife in the Great Lakes Basin. In addition to my complete statement for this hearing, I am providing their statements for the record, and refer you to them for specific details—the statements of Mr. Timothy Kubiak, April 14, 1988, and Dr. Michael Mac, June 21, 1989.

The Service has been concerned with the effect of Great Lakes water quality on fish and wildlife for over three decades, ever since the discovery of eggshell thinning in fish-eating birds, a problem associated with DDT.

While it is true that concentrations of contaminants have declined since the early 1970s, the downward trend has leveled out at an unacceptably high level. Indications of this are that hatchery planted lake trout are still not reproducing naturally in Lake Michigan. Bald eagles that nest along or near the Great Lakes shorelines have poor reproduction and high contaminant concentrations, compared to their inland counterparts.

The Service has been involved in implementing the Great Lakes Water Quality Agreement since its inception in 1972. Service officials have served on various committees and subcommittees to further the goals of the Agreement, and we participated in its revision in 1978, and in the design of amendments in 1987.

Our direct role has largely been one of coordinating and advising the International Joint Commission and U.S. regulatory agencies. The only exception is that we collect fish as a part of the open lake monitoring program for contaminants in fish tissue.

Certain of our routine activities under other authorities also benefit some of the Agreement's goals and objectives. These activities include wetland restoration, land acquisition, contaminant assessment, and our national priority of lake trout restoration in the Great Lakes Basin.

There are four main areas to which the Service could significantly contribute, and thereby aid in achieving Agreement goals and objectives. One is developing of water quality criteria for the protection of fish and wildlife; two is bioassessment and biomonitoring; three is participation in remedial action plan and implementation; and four is cleanup in areas of concern.

The first area has to do with the development of a framework to derive water quality standards that take into account the effects of substances that bioaccumulate. These are particularly troublesome for predators that feed at the top of the food chain. The second area has to do with our statutory responsibility to act as trustees for certain resources such as migratory birds and some fish.

Ecosystem health indicators are contained with the Agreement. One of these is the lake trout, for which an International Joint Commission work group has identified needed monitoring. Another being proposed is the bald eagle. Both are our trust resources. The Service recognizes the need to assess the health of these indicators and their habitats.

The third area is that of providing our operational contaminants expertise to the States for developing remedial action plans. This would consist of setting fish and wildlife goals for the plans with the States and participating throughout the problem definition, remedial action implementation, and monitoring stages.

The fourth area is that of natural resource damage assessments. The Department of the Interior and the States have trust responsibility for natural resources. Under the Superfund legislation and the national contingency plan, trustees of natural resources can perform damage assessments and require restoration of those natural resources which are found to be damaged. We believe these regulations apply to these areas of concern in the Great Lakes and should be used.

The success of the international cooperative effort to achieve the goals and objectives of the Great Lakes Water Quality Agreement

can best be demonstrated through the health of the fish and wildlife resources.

When we have eliminated fish and wildlife health advisories, when we have viable stocks of indigenous fish in the Great Lakes, when we have bald eagles successfully reproducing and inhabiting the shorelines, when mink and otter re-inhabit shoreline areas throughout the basin, and when we have eliminated chemically caused deformities in our fish and wildlife, we will have achieved the goals and objectives of the Agreement.

Thank you.

Mr. NOWAK. Thank you very much.

Let me ask you a question. You referred to a bill. Are there any specific changes in the pending bill that we have, H.R. 4323, that you would recommend on behalf of the Fish and Wildlife Service after that review?

Mr. GRITMAN. Yes, there are a few. One is that the roles and responsibilities of other Federal agencies should be spelled out in the bill. A memorandum of understanding with EPA should be drawn out, similar to what has happened in the Chesapeake Bay program, where there is cooperation and coordination of all the Federal agencies involved.

Mr. NOWAK. Given the activities the pending bill would authorize, for example, the development of the water quality criteria and the remedial action plans for these affected areas, how could the Fish and Wildlife Service contribute to that total effort?

Mr. GRITMAN. I see us participating in the studies and demonstration projects, in the development of water quality criteria and guidance, particularly as it relates to fish and wildlife. I see the Service providing technical assistance to States, developing remedial action plans, and lakewide management plans, as they relate to the goals for fish and wildlife.

Mr. NOWAK. Let me also ask a couple of questions related to testimony you touched upon. That is the fish programs that are existing throughout the Great Lakes—I think with Federal Fish and Wildlife Service cooperation—a stock program is widely existent. Economists tell me that when they look at the overall system, they project an economic value of the Great Lakes fisheries in terms of $4.6 billion. So it is just not recreation that we talk about when we talk about this whole system.

If it is $4.6 billion, or perhaps $3.8 billion, it is still a large economic industry for us in the Great Lakes. The stocking program that had been carried out by the various States has recently, as you reported and as your agency reported, the lack of natural breeding going on after the stocking program initially put in fingerlings from rainbows to coho salmon, to the kings, to the other trout and salmon that are stocked.

I wonder if you can elaborate on how much more successful that stocking program would be if we could enhance the natural breeding of those species we are putting into the system.

Mr. GRITMAN. This week in Washington the Great Lakes Fishery Commission is meeting. That is one of the reasons I am in town. This was discussed at great length yesterday when we had the status of the Lakes report. In all of them, contaminants was a big issue, saying that as the contaminant problem decreased, as it went

down, such as in Lake Superior, the natural reproduction started to take over again, and started to go. But in Lake Michigan, there is none.

In the other lakes, there has been some cleanup and some reproduction, but it is far below what we need for self-sustaining populations.

Mr. NOWAK. So the cost of that program, then, has increased if we don't do anything about the natural breeding program.

Mr. GRITMAN. Definitely.

Mr. NOWAK. If we did that, if we took care of some of the toxic streams, and natural breeding areas, you would greatly enhance the return, that percentage that would come back to breed, is that correct?

Mr. GRITMAN. Yes, that's correct.

Mr. NOWAK. Have you or anybody looked at that in terms of hard economic dollars and sense return?

Mr. GRITMAN. Not to my knowledge.

Mr. NOWAK. I think it would be interesting, the amount of stocking that is going on in terms of focused attention to the fishery at large. If we don't maximize our return, I think we will have less and less reason to enhance the stocking program, which I think would be a shame after the tremendous buildup in the sport fishing industry, and the reduction in some of the major areas of commercial fishing.

I would be interested in anything you could obtain for us from your field personnel relating to the specific lack of return through natural breeding.

The enhancement of those breeding areas, whether it is by artificial reefing, or some enhancement of streams and beds that those trout are put in, I think would be a cost-effective way to really bring about the enhanced return on that pure initial stocking program. I hope you can get us some information on that. Perhaps a few dollars spent to do that in various areas where we know—especially the vast amount of trout and salmon that are put in, you know they are going to return there every two or three years almost automatically, isn't that correct?

Mr. GRITMAN. That's correct.

Mr. NOWAK. We will be looking forward to additional information.

Let me turn now to the EPA's testimony. You touched upon the developing water quality criteria and guidance. One of the questions that is going to come up is how you are going to motivate the States to adopt a "standard" throughout. What is the effect if we do not adopt some standard throughout? There are many arguments put forward that we should have some way to standardize the criteria. Yet in that standardization, get the States' total cooperation. The Great Lakes governors, of course, vary.

I wonder if you could give us any information. I know you have made contact with the States on this specific question, because it will be a key to further progress. What has your response been from the States in pursuing that objective?

Mr. ADAMKUS. Mr. Chairman, it so happens that we are fortunate in Region V, which encompasses most of the Great Lakes States, that we are in the process of reviewing the water quality

standards. That issue came up discussing those issues with each individual State, to my great satisfaction. We are getting positive response from the States. They are coinciding with our expressed concerns at the present time.

They are incorporating during their review process the new requirements which actually respond to the issues you raised, and our concerns over the toxics issue, which was not properly covered. But to the extent which we anticipate right now, for the protection of the Great Lakes water quality, those issues are being discussed and incorporated in individual States' standards. That becomes a standard issue. We have support from the Great Lakes governors. They have indicated in their meetings that this is a part of their program, too.

I don't anticipate any big problems. We are going to address the issues, and they will be uniformly addressed throughout the Great Lakes Basin, which will help us to implement programs and safeguard the water quality of the Great Lakes.

Mr. NOWAK. When you look at the whole system, as I think you are focusing on, looking at the whole ecosystem, and various kinds of contaminants that are entering through various sources, your studies have, I believe, led the Great Lakes National Program Office to take that holistic approach. I wonder if you could spell out some of the reasons why you are looking at the system wide management kind of plan, and what we need to implement on a broader basis?

Mr. ADAMKUS. The management of the Great Lakes definitely has to be integrated, integrated from different medias. I don't believe that has been recognized from the very beginning. So gaining more experience throughout the years, after we realized the problems we were encountering and discovering, we have more or less started in a very simplistic way. Years ago, we thought we could stop the eutrophication at that time. We thought that would be the solution to the water quality problem of the Great Lakes.

At the present time, I believe we have resolved our original concerns. I don't believe that we have any great concern for eutrophication process in the Lakes, but we have discovered other elements which we did not originally even dream about. So that forced us to restructure our approach to the Great Lakes issues.

We are developing plans, as I indicated in my presentation right here, incorporating different offices and not only from water media, but from the air, specifically the atmospheric deposition of the toxics traveling thousands of miles and being discovered in Great Lakes waters, that definitely makes us very concerned. The need arises to incorporate all those elements into the development of an overall holistic approach to the Lakes.

That brings in other Federal agencies, as you have just heard. The contaminants are impacting aquatic life. All those things should be considered and remediated. Definitely one of the issues facing us in trying to respond to the issues is the resource. Maybe if we are being accused of being too slow, and taking too much time to resolve the problems. This is not that we don't recognize those problems. I believe that the greatest issue is that we are not fast enough in providing ourselves the rules and regulations, and at the same time it is very interconnected with the resources issue.

If we can resolve those issues facing us, I believe we will be more responsive to the general public and will have less criticism that we now have.

Mr. NOWAK. I note that on that point, GLNPO has been doing the demonstration projects. I think with the resources that you have available, you are doing all you can. Talking to some of the people that are running the projects, there is a desire to go faster, to go and gather more information. The reason the process is not moving fast enough is probably lack of sufficient funding. We don't have the resources to do it.

We could discuss the information that is not being gathered because the lack of funding just is not going to allow you to go any faster, since you are taking this different, hopefully broader, holistic approach, you are going to have other requirements to fill in, or else you are not going to be able to move the program forward.

I think the lack of funding is the central problem that will be hindering the complete work on the demonstration projects, and all the others. Hopefully we will solve some of that with the new Great Lakes initiative that we put forward, and start to make real progress.

Another area—monitoring and surveillance of the current program—to meet those commitments under the Great Lakes initiative is also being hindered because you don't have the resources. I see our friends from Canada are very interested in this hearing, and are here busily taking notes on every aspect of this hearing. I must say that our information indicates that they are monitoring—they have more stations out there. They have perhaps three times as many than we have, and they monitor annually for heavy metals and toxic organics.

I wonder if you could comment again on what it would take for us to expand our monitoring?

Mr. ADAMKUS. There is no argument that they are our friends. Canadians are ahead of us in the monitoring program. I believe that there is opportunity for us to close the gap, probably in the very near future. We are right now preparing an additional ship which will serve the Great Lakes as a monitoring station, a laboratory. We are going to expand our monitoring work at the Great Lakes National Program Office, and at the same time we will have more comments from the States that are contributing to that program.

So I don't believe that they will add anything more, except to acknowledge the fact that we are behind, and that our intent is really to improve that situation.

Carol, would you comment on that?

Ms. FINCH. I think one thing we could add is that in light of the limited resources, one of the things we have chosen to do is take a look at the Green Bay area and do a mass balance approach on it. That will enable us to take the technology that we have used there and apply it to a lakewide management plan. I think that given that we don't have a lot of resources, this is probably the best use we could put the limited resources to.

Mr. NOWAK. Let me turn to something a little closer to my own district, the Buffalo River, while I have you here. There has been some progress, and in looking at what is contained in several of the

areas I know that the progress report on the type of contaminants that were found there, we had the initial testing. I wonder if you can give us a timetable as to where we are with the summer program and the fall program, and what we can anticipate in moving forward?

Also, if you care to comment on the type of core samplings that were taken out, and the level of PCBs as against the other heavy metals and organics?

Ms. FINCH. The schedule we have now is to begin the sediment profiling and coring in the Buffalo River July 9th through the 21st. We are anticipating that the hazard assessments on sediment will begin shortly after that. The baseline assessments are scheduled for completion in January of 1991. Then the comprehensive assessments will be completed in December of 1992.

Mr. NOWAK. One other area that I think we are going to need some immediate attention to, it has not been brought up, but I thought I should bring it up while I have two agencies here that are probably going to be vitally affected, is the zebra mussel problem that is starting to grow. We have had some seminars organized, one in Buffalo, and several others in other areas, looking at the possible impacts if we don't get a control mechanism for these new creatures.

When we have been informed as to the type of explosion that could take place, I wonder if EPA or Fish and Wildlife—we have an initiative underway to try to get some research monies for all of you to try to get a faster handle on this, because of the lack of natural predators. When you tell people that somebody is going to have 35,000 to 40,000 babies every season, it doesn't take much multiplying to come up with some large numbers.

Recently, although the initial finding two years ago was in the Great Lakes, we know already that this species has shown up an hour or two away from the Great Lakes, like Chataqua. In an inner lake, if there is an environment that will be conducive, this could really take over the lake, unless we can find a way to control this, as we did the other species that came in from Europe. That was an easy problem to control with chemicals in the streams as they were breeding.

But my understanding is that these young eggs will float. Even if you are able to hit a certain area of those eggs that float away, you will not get the multiplying effect.

Do you have any information, and do you think it is necessary that the initiative of the Great Lakes members is necessary to go forward, in terms of obtaining initial authorizations to request $20 million?

Mr. ADAMKUS. Mr. Chairman, I would like to update you on this issue. As you indicated, the problem comes up specifically from the Caspian Sea in the Soviet Union. They have been battling that problem for the last few decades. I am putting my other hat as Chair of the U.S. Bilateral Agreement between the U.S. and U.S.S.R. on. I have direct contacts with them.

I did discuss with the Soviets already about their experience, what they have done. They have offered scientific assistance, trying to help us out to resolve those issues here. We are in constant communication at the present time. I hope that their experience over

there—because they have this issue under control in the Caspian Sea. They originally started the easy way, the chemical way. That has not given the proper results.

So they are experimenting, and scientific work is being over there, the biological approach to it. It seems to me that they have, not completely, but in great part, a solution. They are willing to share this with us. I am very hopeful that we can really apply those techniques right here in the United States.

What it would take at the present time is very difficult for me to predict, because we still don't have the actual description of the work they are doing, but I hope that this is not going to be something unmanageable for us. The minute we have that device from them, sharing with us, we are definitely going to try to apply it in the Great Lakes.

I am optimistic. I am not panicky about this. If Europe can control it, we can control it, too.

Mr. NOWAK. I am glad to see you are moving in that direction. We have a different kind of environment, I think, than exists in the Russian waters. If we can apply—as they indicated—chlorine, to initially kill large amounts, it still will only affect a minute area. It seems to me that we would have to put something else in.

We have a bill pending, and hopefully the Merchant Marine will move forward. In the meantime, as you go through your other work, as you have been pursuing it, you could perhaps, if a request is needed to reprogram some dollars for the initial research, we would be happy to pursue that with the appropriate subcommittee here, or perhaps EPA could segregate some O&M money for this kind of contingency. If approval is needed we would be happy to try to move whatever committee would have direct jurisdiction over that appropriation.

I think we really have to go ahead of the curve here. It is my understanding that as the water gets to about 45 degrees, which will happen in another week or ten days, that the breeding cycle starts. Once that cycle starts, they are reporting to me that they have found some of the zebra mussels around the Buffalo Harbor already.

I am sure that will increase, along with the other regions, unless we can get a handle on it. This could be a major problem if we can't get an early handle on it. If there are two or three breeding seasons where nothing is done, then you really may have some problems. In fact, in talking about the fisheries, and the amount of plankton that is consumed by these creatures, it is incredible. There is great fear by some of the local fishery people that that will affect the whole system of developing our breeding areas and will result in a tremendous lack of food for the whole system. They are so dependent upon plankton at the first stage.

I wonder if you have any information on that?

Mr. GRITMAN. One of the problems with exotics, and you started out today by saying it takes 200 years from a drop of water originating in the Great Lakes to go over Niagara Falls, I wish it was the same with exotics. As you said, just a couple of years ago, they were first found in the Great Lakes, and now they are in every Great Lake.

They multiply very rapidly. Our research center in Ann Arbor has done some literature searching on this throughout the world, and they have not come up with any known predators.

Mr. NOWAK. There is a duck, but that's another problem.

Mr. GRITMAN. Well, we did have a build-up of scaup in the Detroit and Lake Erie area this fall, and they were feeding on the mussel. They were feeding on it when it was very small. But as rapidly as they reproduce, our waterfowl population would really have to increase if we thought that might do it.

As EPA testified, there have been some results with chemicals, but I don't think that's the answer at all. It is going to take much more study. There is only one thing, on a positive note, it appears that as the population builds, and they just explode, they are so prolific, but they do build to a peak, then there is a rapid decline, and they go down. The only problem is then they start right back over again.

One of the things we are looking at is whether they are just in shallow water areas, or in deep water areas, because this has a lot to do with the breeding of fish, and the impact it will have on the fish. We don't know whether they are on offshore reef or just near shore. Right now we are taking a hard look at this and trying to see what we can do.

But every single State around the Great Lakes is very concerned. This does not just affect wildlife, but it has a tremendous effect upon industry, and also water supplies for cities. They plug the inlets. You can't say it happens overnight, but it happens in a very short period, like a couple of years. So it is not one of these things that we have a long time to try to resolve. They are here.

Mr. NOWAK. My understanding is that they have been found by divers as far out as 30 feet of water. With typical Great Lakes geography, before you hit 30 feet, you can move out through a large amount of water. At 30 feet, there is the temperature range they supposedly like to live in. We have a long distance to consider as we go along.

Let me turn to my good friend, Mr. Upton. Coming from Michigan, not only the fish problem and the restoration of that sport fishing industry, but certainly with the zebra mussels, his area will be heavily hit also.

Mr. Upton?

Mr. UPTON. Thank you, Mr. Chairman. I would note, as you talked about the temperature, 45 degrees, I had my feet in Lake Michigan on Sunday, and it is already 45 degrees, at least in southern Lake Michigan. I don't know what it would be like in Buffalo, there might be snow on the ground.

Mr. NOWAK. It was 94 in Buffalo. It was too hot.

Mr. UPTON. Mr. Adamkus, I was concerned when you said a little while ago that you were not panicked. You thought there was a biological way versus a chemical way that we could go after the zebra mussel. I must tell you that six or eight months ago most people had not even heard about the zebra mussel, and now there are warnings, at least in our State, about people transporting boats from Lake Michigan to inland water lakes, making sure they rinse them with chlorine to make sure the zebra mussels are not transported.

I know the zebra mussels have been found, we have watched them quickly spread through the Great Lakes and recently to Green Bay. I welcome your thoughts on cooperation in terms of what the Soviets have done but I must really try and press you a little bit, and urge you to expedite how we can eradicate this menace from the Great Lakes.

Earlier this morning, I commented on my role with the United States-Canadian Interparliamentary Group. We spent a considerable amount of time this year talking about what the Canadians are doing. They are far advanced from where we are in terms of money they have appropriated. They have had tremendous problems already. We have tried to relate it to the lamprey, and how we needed a coordinated approach between our two nations.

If the Soviets have in fact found an answer to dealing with this I would think you would agree with me that we need to find out exactly what the response has been, and to move as quickly as we can. Otherwise, it will cost us tens and perhaps hundreds of millions.

I am anxious to find out why you indicated that you were not panicked. I am.

Mr. ADAMKUS. Mr. Congressman, I am just as concerned as you are. I am from Berrien County, so I know what it is to have clean, good water. I am not panicked because I don't believe in my position I can panic. We have a lot of emergencies popping up every day. In my 20 years with EPA, I believe if I had panicked, we would be in really bad shape in Region V.

I definitely am extremely concerned, and will move as quickly as possible. In ten days, if the Soviets will grant me access to the Soviet Union, I will be in Moscow, and I will be talking to them about this issue. So if I can speed up these things, as fast as I would like to see them happen, we probably will have some answers fast.

Mr. UPTON. I would be anxious, when you return, would you give me a call? I am anxious to share that information. If I can help you get your visa——

Mr. ADAMKUS. I definitely may take you up on that.

Mr. UPTON. I will be glad to help. I am sure the Chairman would join me in that as well.

Let me go back to a few other things that were said earlier. One of the purposes of the hearing, of course, is to review the Chairman's bill as he introduced it not too long ago. I intend to be a cosponsor, and you can put my name on your bill with a number of my other Michigan colleagues. I note that I have not seen a formal Administration position, although I am sure their views have been solicited. I would guess without seeing what they may say that they are concerned probably with the cost, to a degree.

Beyond that, your comments, and Ms. Finch's comments as well, that in light of limited resources you are doing everything you can, it seems that if we read between the lines, you would welcome this additional funding to help you do the job that is really required.

Perhaps I can get a nod of the head, instead of something that might be translated——

Mr. ADAMKUS. I would even say "yes."

Mr. UPTON. Okay. You can say yes.

Mr. ADAMKUS. I will say yes personally. No one from the Agency has discussed this with me, so I cannot make any formal statement, but personally I would welcome it.

Mr. UPTON. I will do my best to get my other Michigan colleagues, on both sides of the aisle, to join on Mr. Nowak's behalf.

Let me ask another question. I have been very concerned about contaminated sediments. As you know, since you are from my home county, Berrien, we have three major rivers that flow through my district. I have four counties along Lake Michigan—the Grand River, the Kalamazoo River, and of course the St. Joe River. We have had a number of hearings in Kalamazoo with regard to the Kalamazoo River which is the leading source of PCBs into the Great Lakes. We have been anxious to get that cleaned up as quickly as possible.

I am curious to know if you have a status in terms of where we are in that regard, and if you don't, if you might be able to supply that to me at an earlier date.

Mr. ADAMKUS. I will make an initial statement. As you know, we are recommending from the regional office to put the Kalamazoo River on the National Priority List as a Superfund cleanup site. That recommendation has been forwarded to headquarters. My understanding is that it has been approved, and been forwarded up the channels. I hope it will come out soon.

Mr. UPTON. I am encouraged. We have been working to see that that was done. I would be surprised if it was not. But I am delighted to hear that it is still on the timetable. The other thing I note in your testimony, on page six, is that you identified five areas to receive priority consideration in locating and conducting demonstration projects—Saginaw Bay, Sheboygan, Calumet River, Ashtabula and the Buffalo River. As I recall, there was a concentrated effort on EPA's part to also look at the Waukeegan Harbor outside of Chicago. I believe it is one of the most polluted sites in contaminated sites that the Nation has identified.

I know there was a demonstration project along those lines over the last 18 to 24 months to see what could be done to try to clean up those areas. I was hoping last fall to get over there to see the progress that had been made. Can you give me a status report in terms of where we are with that project?

Mr. ADAMKUS. Yes, sir. Waukeegan Harbor is my baby, which is 12 years old already. I have fought this all the way through. The company didn't even want to acknowledge that Waukeegan Harbor was polluted. Finally, we came to a point when they signed the consent decree, the consent decree has been lodged with the courts and approved, and they are scheduled to begin the actual cleanup operation this spring.

The design work has already progressed so far that they can start the initial work, and I hope this will start the process. The entire cost for the cleanup committed by the company will be $27 million. That's a major undertaking. It is one of the areas of concern. The way I see it, it will take probably an additional five or six years until we really come out and say we have finally resolved the Waukeegan Harbor PCB contamination. This is the most PCB-contaminated body of water in the United States.

I am hopeful, the work is proceeding, and I don't anticipate any big delays in that project.

Mr. UPTON. I am glad to hear that, and I hope that at some point this summer maybe you and I can take a little inspection tour and see what lessons we have learned, where we can prod those in other areas around the Great Lakes.

Thank you.

Mr. ADAMKUS. Thank you.

Mr. NOWAK. Thank you very much. Maybe after you make that inspection you can go to the Soviet Union with Mr. Adamkus for that other information.

Mr. UPTON. No.

Mr. NOWAK. I just want to mention two things bearing on the testimony that Mr. Upton mentioned. We had a Water Alliance dinner last night. It is a joinder of industrial groups and various people who are interested. We gave out some awards.

One of the awards was given out to Mr. Reilly for his past work in the Conservation Foundation, as well as Administrator of EPA. Mr. Hank Habicht was there to accept that award. We had the opportunity to talk, and he discussed in his comments after receiving the award, your work, his discussions in working with you and the new focus on the Great Lakes.

He talked about the systemwide management kind of plan that he would be further pursuing with you, as well as some increase in dollars that would be available hopefully like the amount we have put in the bill for further consideration of EPA as they go forward with all this work.

So I think the climate is changing, and I hope we can look forward to an increased level of activity in all these areas, including the monitoring, which I think is very important as we try to standardize what is flowing into the system. If we don't look at the system, we are going to have some real problems as we go down the line. I hope as you pursue that initiative with the States, you will give us the benefit of the kinds of responses you are getting for the criteria standard we hope to move forward in this legislation.

Again, your overall job with the limited resources you have you are doing very well. You have certainly made progress. But I can't help but feel that with adequate resources, and a lot of that is going to be both people and money, you could be doing a great job in the future. We look forward to hopefully playing a role in making sure that you have those adequate resources.

Thank you very much for your testimony and your appearance here today.

Mr. ADAMKUS. Thank you, Mr. Chairman.

[Mr. Adamkus' prepared statement appears on page 61.]

[Mr. Gritman's prepared statement appears on page 200.]

Mr. NOWAK. Now I would like to invite the State agencies for their comments.

We have R. Darryl Banks, Deputy Commissioner, New York State Department of Environmental Conservation; J.D. Snyder, Director, Office of Great Lakes, Michigan Department of Natural Resources, accompanied by Dina Klemans, who is the Remedial Action Plan Coordinator, Michigan Department of Natural Resources.

Welcome before the committee. We will incorporate your testimony in its totality. Mr. Banks, you may proceed as you so desire.

TESTIMONY OF R. DARRYL BANKS, DEPUTY COMMISSIONER, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION; J.D. SNYDER, DIRECTOR, OFFICE OF GREAT LAKES, DEPARTMENT OF NATURAL RESOURCES, ACCOMPANIED BY DINA KLEMANS, REMEDIAL ACTION PLAN COORDINATOR

Mr. BANKS. Thank you, Mr. Chairman and members of the subcommittee.

I would like to use my time to highlight my remarks in my statement which are pertinent to today's hearing.

I am Darryl Banks, Deputy Commissioner for Environmental Quality at the New York State of Environmental Conservation. On behalf of Commissioner Thomas Jorling, I appreciate the opportunity to testify today on H.R. 4323, the Great Lakes Water Quality Improvement Act of 1990, and on other matters pertinent to today's hearing.

I would like to thank you, Mr. Chairman, for your leadership and for the initiatives you have undertaken to improve Great Lakes water quality.

In my comments I would like to mention that generally we are in agreement with the recently published Fifth Biennial Report of the International Joint Commission. In particular, we are pleased with the five major recommendations that were issued by the IJC in its report. I would like to draw attention to Article 1 that called for eliminating the inflow of persistent toxic substances into the Great Lakes environment, a goal that we endorse. However, as the subcommittee knows, as everyone who works on the Great Lakes knows, that combined sewer overflows are going to be with us for a while. It is not a problem that can be immediately eliminated.

Article 2 of the report pertains to implementation of the Agreement. We only add that New York certainly has an adequate system for fish consumption advisories. The problem we encounter that I think is endemic around the Basin is making sure that concern is shared adequately throughout the public.

We want to make sure to indicate that we are committed to developing a remedial action plan as called for in Article 3, and we believe we have established a reasonable time frame, and a time table that allows for extensive and strong public participation.

I would like to turn to the legislative proposal that I think is at the heart of today's hearing on H.R. 4323. This legislation recognizes the need for the Federal Government to strongly support the purpose and objectives of the Great Lakes Water Quality Agreement. H.R. 4323 directs in Article 11 that the parties commit themselves to seek the enactment of additional legislation that may be necessary to implement the programs and measures that are called for in the Agreement.

We feel that the international nature of the Great Lakes Basin and ecosystem requires very strong Federal leadership, certainly to help us to attain consistency throughout the Basin for water quality programs.

The legislation requires EPA to adopt specific numerical water quality criteria and guidance for the Great Lakes States in Section 2. We feel that Basin-wide criteria and guidance to the use of those criteria by State and local governments are a very important part of the bill. We feel this is a logical approach to obtaining the objectives of the Water Quality Agreement.

All of the affected regulatory agencies throughout the Basin must have the same tools available, consistent tools to correct the problems in the Great Lakes. Basin-wide water quality criteria is one of those tools. The responsibility for promulgating those criteria into enforceable standards should, however, we feel, be retained by the individual States, so that they fulfill their responsibilities under the necessary regulatory review process.

I would like to add that in New York State right now we have 95 standards for toxic compounds in surface waters, and another approximately 95 guidance values for toxic substances in surface waters. In this current fiscal year, we anticipate that we will be promulgating another three additional new substances as standards and will be revising approximately five of those existing standards that we have on the books.

We believe that these water quality criteria should not be implemented prior to agreement being reached with the Canadian Government, however, regarding criteria applied to the Great Lakes, mainly because we share the Lakes with our neighbors to the North. The criteria should be consistent across boundaries if we are going to achieve our goals.

Relative to the development of water quality criteria is the need for Federal leadership in attaining the virtual elimination of discharge of persistent toxic substances in the Great Lakes. As simple as that statement is, there remain many unanswered questions as to such things as analytical detection levels, treatment technologies, riparian issues and other topics that demand consistent, Basin-wide policies that can be used by regulatory agencies in implementing their pollution control programs.

A strong commitment on the part of the United States and Canadian governments is required or the cooperative spirit of the IJC will be for naught. The need for this commitment was recently, as I mentioned, repeated by the IJC in their Fifth Biennial Report on the Great Lakes water quality. The first recommendation in that report is that the parties take every available action to stop the inflow of persistent toxics into the Great Lakes environment.

We feel one of the most significant tools available to regulatory agencies such as my agency in New York State is the rapid development and continual updating of best available treatment technology guidelines, and categorical pretreatment guidelines by the U.S. EPA. The development and updating of these guidelines has been much slower than expected and is currently far past pre-set deadlines. We would to highlight again the need for progress in these areas, since they represent an important aspect in achieving the goals of the Water Quality Agreement.

The inclusion in the legislation that is under consideration today of a grant program for implementation of the Great Lakes Water Quality Agreement is strongly endorsed by my agency. Progress in

remediation of water quality problems requires a substantial commitment of resources.

It is our opinion that the proposed level of funding authorization should increase, and we are suggesting that the Federal cost share should increase from 50 percent to 75 percent. We feel that this level of support will make the Great Lakes commitment consistent with the funding of other water quality initiatives, such as the National Estuary Program.

By signing the Water Quality Agreement, the Federal Government has rightfully made the commitment to improving water quality in the Great Lakes. The Federal Government has a responsibility, we feel, for leadership in implementing the Agreement. We feel the authorized appropriations should increase.

The proposed level of $30 million per year for fiscal year 1992 through 1997—only about $1.25 million would be available for each State for each of those years for implementing the Water Quality Agreement. Considering the high cost of remedial measures in the areas of concern, and the fact that there are 26 of these areas of concern in the Great Lakes States, the proposed level of funding may not be sufficient to support or attain the ambitious goals of this bill.

Therefore, we ask that the members of the Committee keep in mind that there is a consistent need for vigilance in assuring that these monies are authorized, and that they are in fact appropriated. These are difficult times, we realize, and the equitable distribution of Federal resources is a real concern. However, we believe the American people are willing to pay for a health environment, particular one that serves as a catalyst for economic development and preserves the rich treasure we treasure in a resource like the Great Lakes.

H.R. 4323 includes a requirement that the remedial action plans be approved by the IJC. We are concerned with this requirement. Among other things, this would give oversight powers to a commission we feel is not totally accountable to Congress or to the Federal Government. It is our opinion that if remedial action plan approval is required, that EPA, not the IJC, should approve the plans.

The legislation also includes a timetable for submitting the remedial action plans to the IJC. As you know, all the Great Lakes States have begun and are committed to moving as quickly as possible to develop their remedial action plans. There is a need for some flexibility in developing these plans, in which a very rigid timetable, as proposed in the legislation, may not acknowledge.

For example, in New York State, attaining the deadline for completion of the plans may be frustrated by the limited State resources, and certainly our desire and our legal requirements in New York for strong public participation. To illustrate that point, under our current timetable for completing the six remedial plans in New York, our plan for Eighteen Mile Creek would not be completed in time to meet the proposed schedule in the bill.

We are currently implementing the recommendations contained in the Buffalo River remedial action plan, we have just begun developing the Niagara River remedial action plan. Many of the same staff that would be involved in both of these efforts, for exam-

ple, would be our core group of resources to deal with the Eighteen Mile Creek remedial action plan.

In conclusion, Mr. Chairman, we strongly support H.R. 4323, and we respectfully request the subcommittee to carefully review our suggested changes and suggestions. In closing, I would like to mention the very important effort in assisting the efforts of all the Great Lakes States to deal with toxic pollutants in the Great Lakes has been the establishment of the Great Lakes Protection Fund. It is a cooperative effort among the Great Lakes States to provide a fund of approximately $100 million to support research and development efforts to deal with toxic substances in the Lakes.

I would like to mention today that New York State's contribution of $12 million to that fund is part of our 1990 Environmental Quality Bond Act, which was introduced by the Governor. It is now under consideration in the legislature, and we are expecting its passage eminently. We are very pleased to announce that.

Thank you for the opportunity to comment, and we look forward to working with you on these important pieces of legislation.

Mr. NOWAK. Thank you very much, Mr. Banks.

Before we go on to questions, let me call on Mr. Snyder.

Mr. SNYDER. Thank you, Mr. Chairman.

It is indeed a pleasure to appear before you this morning on behalf of Governor Blanchard and DNR Director David Hales. I am J.D. Snyder, the Director of the Great Lakes, Michigan, DNR.

I do thank you for this opportunity to comment on legislation before you entitled the Great Lakes Water Quality Improvement Act of 1990, regarding the implementation of key provisions of the U.S.-Canada Great Lakes Water Quality Agreement of 1978. I commend the members of this subcommittee and the Chairman for your attention to this critical water quality problem.

Other speakers this morning have addressed several important background areas which I will not bother to repeat. Certainly, the recently IJC report is an important backdrop to the consideration of the subcommittee of this bill. The Chairman mentioned the general climate of change I think we see occurring in our examination of Great Lakes issues and problems and how we might go about facilitating their solution.

As we all know and recognize, the Agreement itself is an important international agreement. It symbolizes the shared regional concern and cooperation on Great Lakes water quality problems. The Agreement most importantly perhaps serves as a regional focal point to address water quality issues by the two Federal governments.

Responsibility for implementing the Agreement rests with the respective Federal governments in consultation with the State and provincial governments. To fulfill the demands and requirements of the Agreement, it is of course imperative that the Federal Government provides adequate resources to carry out the responsibilities under this important Agreement. We feel that H.R. 4232 provides an excellent framework to implement those provisions of the Agreement that are currently being neglected.

While I don't want to underemphasize the fact that there has been significant progress made, as in the case of the EPA's Water Quality Initiative, nevertheless, there are many areas that have

been weak, and can stand to be significantly strengthened, and/or accelerated. Mr. Banks mentioned a couple of things in his statement that I also want to touch on. A little bit of background is Michigan's role as a regional leader in toxic control and Great Lakes protection. We did take a lead role in developing the eight-state Toxic Substances Control Agreement of 1986. This Agreement was a critical first step in voluntary regional cooperation to reduce toxics in the Great Lakes ecosystem.

As Darryl mentioned, we have also established the Great Lakes Protection Fund, a unique, first-in-the-Nation $100 million endowment for Great Lakes toxic substances research and cleanup demonstration projects. Michigan has completed, with full public involvement, and submitted nine remedial action plans. We have five more to complete. One is tied up in litigation while the other four are joint plans, three being developed with Ontario and one with Wisconsin.

I would also like to take the opportunity to mention that just last month, Governor Blanchard issued an executive order on Great Lakes protection, taking strong action by directing all State agencies to manage their environmental programs in order to ensure that they are consistent with the goal of virtual elimination of discharging persistent toxics in toxic amounts to the Great Lakes from Michigan sources.

We feel strongly that the Federal Government must fulfill its obligations under the current Water Quality Agreement in several important ways. First, as Mr. Adamkus said, the EPA does need to move forward in setting national standards and criteria for the identified critical pollutants, and to ensure adequate funding of programs delegated to the States for developing RAPs and lakewide management plans.

As we mentioned, EPA has begun its effort with the Water Quality Initiative to establish unified Basin-wide quality standards. We frankly cannot overemphasize the importance of this effort. In order to be successful in an ecosystem region-wide approach, we have to be able to prevent pollution shopping between the States by those who might feel free to shop around for the State with the laxest standard, in order to minimize their costs of complying with the strong requirements that are necessary.

The requirements of H.R. 4323 for specific numerical water quality criteria to protect human health and the biological integrity of the Great Lakes are an important step in assuring needed action. This criteria should be established as soon as possible to provide the Basin-wide uniformity of water quality standards that is so needed.

Regional guidance regarding the criteria, including the control of point and nonpoint sources, anti-degradation and pollution prevention is likewise essential. You also might want to consider in your penalty provisions under 5(f) for States' failure to adopt EPA-promulgated standards, rather than using the scheme you have there, where EPA would promulgate rules in lieu of the States failing to adopt the standards promulgated by EPA. For instance, in the case of Michigan, even if EPA were to take that action, the DNR would still not be able to do anything without there being State legisla-

tion providing authority for the agency to implement the Federal standards.

As we have said many times in the past, and want to reiterate this morning, the EPA must move much more rapidly to implement the requirements of the Agreement as it was revised in 1987. As we all know, the general approach has been to develop plans or strategies to implement specific requirements of the Agreement. But to date none of these plans or strategies have been finalized. I think the public is expecting more from us in our performance of our duties and responsibilities.

Truly, the combination of the extensive new requirements and the lack of clearly established priorities has led to a current situation which leads to the impression that little is being accomplished. As proposed in H.R. 4323, with submittal of Stage 1 plans by June 1, 1992, Stage 2 plans by June 1, 1994, they could only be met with an increased Federal commitment and coordination with State agencies developing those plans.

We need Federal and State cooperation to ensure that each plan addresses the specific water quality problems of each area of concern in order to restore the beneficial uses of those water bodies. We cannot use a cookie cutter approach.

It is imperative that the EPA develop a responsive process, including full State participation for determining the adequacy of submitted plans to ensure a coordinated, equitable review of all plans. We think that is very important.

The Agreement states that the parties shall cooperate with the Great Lakes States in the development and implementation of the RAPs. The proposed legislation would in effect place the responsibility for developing the plans on the States. We suggest that the legislation provide authority for the EPA to delegate that responsibility for activities under the Agreement to the States. The EPA and the States could or should negotiate memoranda of understanding to establish respective roles and responsibilities, including Federal funding for completion of the activities consistent with effective implementation of the Agreement.

It is important to remember that the role of the IJC is an advisory one to the Federal governments in the process of implementing the Agreement. We see the IJC as serving a role of the conscience in the process. The IJC's advisory role should be preserved as such providing evaluation of the efforts by the parties to implement the Agreement. But the IJC currently does not, and we believe should not, have independent authority to make findings regarding the sufficiency of RAPs. Federal governments, as the parties to the Agreements, are responsible for implementing the provisions of the Agreement. We suggest that the provisions of H.R. 4323 complement and support that basic scheme.

As proposed in the legislation, an aggressive schedule must be initiated to ensure steady progress in developing lakewide management plans. Progress must be made in defining scope, nature and extent of the plans. The EPA, in full consultation with the States, needs to provide clear guidance about what constitutes a plan and provides States funds in order to carry out their responsibilities.

The proposed legislation acknowledges these needs in requesting new levels of funds. However, the areas identified for funding, such

as demonstration projects, nutrient monitoring, water quality criteria development, and NOAA funding, should be further defined. Michigan and other Great Lakes States would be glad to provide assistance in this process. Legislation should require the development of a process with full State involvement, we feel, to establish mechanisms to ensure that funding is used to the greatest possible benefit.

Again, thank you for the opportunity to comment on H.R. 4323. With the Committee's permission, I will submit more detailed comments in writing for the record.

Mr. NOWAK. Thank you both for your comments relating to the bill.

One area that we are going to be reviewing, of course, is how those water quality criteria developed and how the States can react to them. There is some variance in your testimony on that point. I am wondering—Michigan has so much of the shoreline of the Lakes, and New York could bring about the kind of relative census with all the other Great Lakes States on this specific issue.

When we talk in terms of the water quality criteria, we looked at several things, several strong arguments were put forward for a general consensus and for adoption of a standard water quality agreement. The Lakes have been termed a "closed system." There is very little flushing, as there may be in fast moving bodies of water. As we described it, by pouring that glass of water up in Lake Superior and 205 years later it is going over the Falls, that certain shows how slow a complete cycle is.

We mentioned the problem of competition perhaps between the States, if there are different levels of criteria and different standards out there. Third, one of the reasons too, was establishing that kind of uniform criteria. That really elevates the burden of the States to derive their own specific standards, and whatever one State does is going to affect somebody else down the line at some future event. That may also remove—as has been mentioned to the committee previously—the legal burden on the States in the event that criteria is challenged in the courts.

We hope that we could look forward to receiving as quickly as we can some consensus. You have the protection fund now, you have gone to the trouble of establishing a $100 million protection fund, which hopefully will be used to match some of the dollar increases that we can put out in this bill in cooperation, hopefully, with a new focus on EPA. We will have an opportunity to really start to leverage some of the new initiatives out there.

I wonder if you could comment on anything we can look forward to. Do you have within that protection fund an avenue to bring about the consensus on a particular aspect of this, or are all the States just going to do their own kind of view on this thing, without that cooperation? Isn't there now a system-wide kind of approach because of the establishment of that fund? And is the fund established to that $100 million level?

Mr. BANKS. I have a couple of comments along the lines of consistency. When the Great Lakes governors signed the toxic agreement, they then set into motion a group to implement the agreement and to really put together an implementation scheme for various parts of what was required under that. It was a group that is

now called the Great Lakes Environmental Administrators. It meets periodically throughout the year and has several working group that have been looking at the notions of consistency.

For example, one of the first products that came out of that group was getting some consistency Basin-wide on permitting, and in particular with our regard to our air directors. We have been able to gather together, look at and come up with at least a uniform, consistent way to address insofar as possible, taking into consideration the differences between States and their own internal sovereign legal systems, principles for looking at air toxics and evaluating permitting sources.

The companion working group is looking at the whole array of water quality issues. That vehicle might very well be a good interface in terms of pulling together a consistent approach, and an understanding to providing information for the subcommittee. With regard to the Great Lakes Protection Fund, there is a board of directors which has two members from each State on the Board. The goal of the Board of Directors certainly is to provide the kind of necessary coordination for utilizing the proceeds from that fund in terms of consistent and coordinated and agreed-upon research schedules.

I think both of those avenues are not only available right now, but are starting to operate to achieve some sense of discussion and consistency around the Basin. The Administrators meeting certainly has been very helpful in terms of trying to coordinate agreements with toxics. I think one of their first products coming out was this agreed-upon permitting of toxic air sources.

Mr. SNYDER. Mr. Banks has done an excellent job as far as providing a really solid overview as to the implementation of the Governors' Toxics Agreement and some of the fruit we have already been able to enjoy from those efforts. The only thing I would add which complements what Darryl has mentioned is that there is a limitation as to how much we can accomplish under a voluntary kind of framework. I would take that opportunity to point out again the really vital need for the EPA to play its necessary leadership role, in particular the area of water quality standards being uniformly applied across the Basin.

We have laid a good foundation or framework for being able to move forward. We have been able to have a mechanism in place whereby there is good communication between the agencies and the several Great Lakes States. The bottom line certainly does remain that the EPA must and needs to play that vital leadership role, that only it can as a Federal agency, putting together a uniform water quality standard effort that would apply Basin-wide.

Mr. NOWAK. It was our understanding from the testimony earlier today of Mr. Adamkus and others are pursuing that with the States. Is that correct?

Mr. SNYDER. That's correct.

Mr. NOWAK. Because of the $100 million fund and other cooperative agreements with the States or by the States among themselves, I would hope that that process could be speeded up instead of having individual negotiations on every one of these areas, that the States, through their own initiative, could come forward with a

proposal that EPA could review and perhaps the States would have their "adequate input" if that could be put together.

Would that be a reasonable way to approach this?

Mr. BANKS. There certainly have been a number of initiatives in terms of what the States have been able to do amongst themselves. What comes to my mind is that we have heard testimony today with regard to the lakewide management plans. I think it significant that one of the plans that came out of a State and provincial kind of effort, on the Niagara River Toxics Measurement Plan was finally agreed upon between the four parties—New York, Ontario, EPA, and Environment Canada. One of the provisions was to look at Lake Ontario from a very comprehensive sense, realizing that the Niagara River flows into Lake Ontario, and try to put into place a framework to begin to look at that lake from the standpoint of beginning to manage the toxic sources on both sides.

Now that has become, at least from my understanding, a product that is being talked about, that is being looked at by other States around the Basin with regard to how one starts to put together lakewide toxics plans. Certainly it is not applicable to every one of the Lakes, but it is a product that came out of a State and a province having to look at a very difficult situation and move ahead with some positive action.

Mr. NOWAK. While I have both of you here, I think it would be useful if we could focus—the Great Lakes bill will be pursued, I can tell you that. We will also take into consideration some of your other comments concerning the funding changes, contributions to the programs that will benefits both the States and the Federal Government.

While you are here, I wonder if you would comment on two other initiatives—the Zebra Mussel bill that I know you are familiar with, and also the Fish and Wildlife Research bill. Will you give me your analysis or comments briefly on those two initiatives, what you are finding in Michigan as well as New York?

Mr. SNYDER. First, on the Zebra Mussel bill, which is really the only one of those two I can comment on. Of course in Michigan we have a tremendous concern about the zebra mussels, having been identified both in Lake St. Clair and in Lake Erie. We are starting an intensive information campaign to our anglers and recreational boaters as to the precautionary measures they should be using in order to do what we can to stem the spread of this organism. We are certainly anxious to move forward with all the necessary research that needs to be done in this area. There are many unanswered questions that need to be answered so that we are in a better position to both provide information to the public and to do what we can to develop and devise proper management control strategies. Until we have been able to come up with more answers than we currently have, we are not going to be in the best possible position to provide the public with the information they need and protect the resource with what it needs.

We are intensely interested in moving forward with a good solid effort and working with the Federal agencies, and looking forward to having some funding for those activities that need to carried on.

I might mention that in connection with the Great Lakes Protection Fund there is both a regional component and a State compo-

nent. Michigan has been the first out of the gate in implementing its component of the Protection Fund. We have received a number of proposals that address various aspects of the zebra mussel issue. So there is a specific product benefit that we are already able to enjoy by way of having established this Fund, and we look forward to moving ahead with that kind of research under the auspices of that Fund.

Mr. NOWAK. So again, if we had a Federal amount—as in the bill $20 million for research—that could be leveraged with the dollars you are already putting forward.

Mr. SNYDER. Indeed.

Mr. NOWAK. I wonder if you can tell us the status, have you had screening removed and so on over the—can you describe for the committee what the problems have been in that? Have you found any movement of the zebra mussel from the Great Lakes into any other bodies of water interior to the Great Lakes?

Mr. SNYDER. We have not documented any movement as such. What we anticipate and what we will be monitoring most closely, as an example of the Great Lakes movement, is that from Lake Erie to the Saginaw Bay, where there is an appreciable amount of recreational boating traffic. We are very concerned about the movement there.

As I mentioned, our informational campaign is going to be designed to warn people about the very possible spread of the zebra mussel to the inland waterways. That is what our informational campaign will at least slow down, if not prevent. Of course, as you probably know, the City of Monroe over the winter months had a problem with their drinking water intakes. At some considerable expense, they had to take remedial action in order to free up the encrustation of the zebra mussels in order to restore the flow for their drinking water supply. That of course is the most dramatic event we have had in Michigan in connection with the zebra mussels. Unfortunately, I am sure it will not be the last or the only one.

Mr. BANKS. Mr. Chairman, I would like to make a couple of comments. First, with regard to the zebra mussel bill, we certainly are quite supportive. The whole issue of ballast water management is one of concern, and I think the ballast water management program that is addressed there is one that we feel is a very important step. Equally important are the provisions in that piece of legislation that begins to set up an institutional framework throughout the Basin on a regional sense to begin to deal with this issue. This is one that we felt certainly was going to stem the tide of the zebra mussel marching across Lake Erie, and being very necessary to establish. We look forward to participating in that Commission.

Other than the anecdotal information you mentioned with regard to Lake Chataqua I don't have any information right now from our fisheries people with regard to inland waters. However, we certainly will be vigilant this season. As you know, there are a number of waters in New York that have direct access to the Great Lakes, and zebra mussels have been found in the St. Lawrence River, Lake Ontario already. We will be diligently looking at that.

One further comment on the other piece of legislation that I mentioned in my testimony, the Great Lakes Fish and Wildlife

Restoration Act. Again, we are quite supportive and certainly welcome the opportunity to collaborate more closely with the Fish and Wildlife Service. We feel that in the legislation it might be more helpful to more clearly delineate the authority and responsibility of State natural resource agencies for the management of Great Lakes fish and wildlife resources. We feel that might go a long way toward at least helping to lay out very clearly what the responsibilities and authorities of the State resource agencies are, as opposed to the U.S. Fish and Wildlife Service.

Mr. NOWAK. Thank you very much. Mr. Stangeland has just come back. I hate to impose upon him for any questions at this time. We can certainly keep the record open for the review and submission of questions to the witnesses that were present while Mr. Stangeland was not here.

Mr. STANGELAND. If I might, Mr. Chairman, I feel quite confident that with your knowledge and concern about the Great Lakes you have asked the most pertinent questions and some of my questions might well be redundant. I will not ask any questions at this time, but certainly if questions do arise that we believe need answering, we certainly will submit them. We recognize this panel as an excellent set of witnesses as well as the previous panels, and the panels to come. I will forego questions at this time.

Mr. NOWAK. Thank you very much. We appreciate your presence here. You really are two of the leading lights in the State and we will be looking for your input as we develop new information. Our own Governor, of course, is very concerned about the actions in Western New York and the Great Lakes and has great interest, as well as Mr. Blanchard, who served with us several years here in the Congress. We feel as if we have a great resource to go to for information on the Zebra Mussel bills and issues, and we certainly will get back to you on that, as well as the progress on our basic Great Lakes bill.

Thank you for your time.

Mr. SNYDER. I look forward to working with you.

Mr. BANKS. Thank you, Mr. Chairman.

[Mr. Banks' prepared statement appears on page 102.]

[Mr. Snyder's prepared statement appears on page 205.]

Mr. NOWAK. Our next panel will be from the environmental community—three national organizations, the National Wildlife Federation, Mr. Tim Eder, who is the Water Quality Standards Project Manager, Great Lakes Natural Resources Center; along with the Conservation Foundation represented by Dr. Theo Colborn, a Senior Fellow of that Foundation; and Great Lakes United, Mr. Philip E. Weller, the Executive Director of that organization.

I would like to welcome you, and look forward to hearing your testimonies and comments. Hopefully you can also comment, being the last and sometimes the best, because you have had the opportunity to hear the other witnesses, including the new positions taken by the IJC, which I think is a welcome addition to their formal role in pursuing their objectives. Let me turn to Mr. Eder for his initial comments.

TESTIMONY OF TIM EDER, WATER QUALITY STANDARDS PROJECT MANAGER, GREAT LAKES NATURAL RESOURCES CENTER, NATIONAL WILDLIFE FEDERATION; THEO COLBORN, SENIOR FELLOW, CONSERVATION FOUNDATION, ACCOMPANIED BY RICHARD LIROFF, SENIOR ASSOCIATE, PROJECT DIRECTOR; PHILIP E. WELLER, EXECUTIVE DIRECTOR, GREAT LAKES UNITED

Mr. EDER. Thank you, Mr. Chairman and members of the subcommittee. I want to thank you for this opportunity to testify today on H.R. 4323, the Great Lakes Water Quality Improvement Act, on behalf of the National Wildlife Federation.

I will summarize my written testimony and ask that my entire statement be included as part of the record of this hearing. As well, I have here three attachments referred to in my written statement that I ask to have included as part of the record of this hearing.

Mr. NOWAK. Without objection, so ordered.

Mr. EDER. Since 1982, NWF's Great Lakes Natural Resource Center in Ann Arbor, Michigan has focused on toxic chemical contamination problems in the Great Lakes, especially problems relating to the effects of toxic substances in waterfowl and wildlife, and the threat those toxic chemicals pose to the health of humans residing in the Great Lakes Region. NWF has devoted much of our resources to trying to get U.S. EPA and the Great Lakes States to take seriously their obligations under the Great Lakes Water Quality Agreement. In our view, the Agreement is a remarkably visionary document for the protection and restoration of the Great Lakes ecosystem, but it is irrelevant if its principles are not reflected in domestic law. NWF tries to find every opportunity to get EPA and the States to weave the Agreement's requirements into the legal fabric of the Clean Water Act, especially the States' water quality standards and pollution control programs.

Mr. Nowak, we appreciate your leadership on Great Lakes Water Quality issues, especially in the enactment of Clean Water Act Section 118, the Great Lakes Section. When that law passed three years ago, we believed, and I am sure you hoped, that it would eliminate any ambiguity that the U.S. intended to implement the Agreement, and that EPA was in charge of that job.

Unfortunately, the track record of EPA and the States has been dismal since Section 118 was enacted. EPA and the States have ignored their obligations under the Agreement and Section 118 and have adopted water quality standards and pollution control regulations that are inconsistent with the Agreement's requirements.

For that reason, we support H.R 4323.

Under the State governments' current water quality standards and pollution control programs, the continued dumping of even the most dangerous toxic chemicals, including PCBs, dioxins, furans, lead and mercury, is permitted. Past and continued dumping of toxic substances into the Great Lakes has resulted in fish that cannot safely be eaten, and in serious deformities and reproductive failure in Great Lakes wildlife.

There is a serious lack of uniformity among the Great Lakes States in their standards, and in the procedures they use to implement them to control sources of toxic pollution. This lack of uni-

formity encourages competition for polluting industries, it ignores the fact that the Great Lakes are one interconnected ecosystem, and it militates against a badly-needed comprehensive binational strategy to eliminate contamination from persistent toxic chemicals, the type of strategy that was outlined for you today earlier in the IJC's testimony.

Therefore, an extremely important provision of H.R. 4323 is its requirement that EPA publish guidance with respect to implementing procedures, including control of point and nonpoint sources of pollution, anti-degradation, and pollution prevention. These implementing procedures can be far more important in controlling toxic pollution than the actual numerical water quality criteria. For example, all of the Great Lakes States and EPA have implementing procedures that allow dischargers to dilute their wastes instead of removing or treating them. Because of the unique sensitivity of the Lakes to chemicals that persist or bioaccumulate, we object to allowing any dilution of those compounds.

The Upper Great Lakes are essentially a closed system. What matters to them is controlling the total amount of persistent toxic pollution, not just the concentrations. Even though the States often adopt virtually identical numeric criteria for a specific pollutant, there can be tremendous differences in the amount of pollution dumped by similar dischargers on different sides of the same lake because of these dilution factors. In one example, Wisconsin's dilution factor would have allowed hundreds of times more dioxin from a pulp and paper mill to be dumped into Lake Superior than Michigan's procedures would have allowed.

H.R. 4323 is necessary, even though EPA's Great Lakes Water Quality Initiative is already underway. The numeric criteria and implementing procedures being developed under the initiative would eventually, if adopted, fulfill some of the requirements of H.R. 4323. However, the initiative is not a reason why the legislation is not necessary. Enactment of H.R. 4323 will ensure that the initiative fulfills its potential and will ensure that the criteria and guidance developed under the initiative are adopted as enforceable requirements in State water quality standards.

H.R. 4323 will ensure that EPA's initiative fulfills its potential because EPA is currently under no legal obligation to complete the initiative or to promulgate new regulations or publish new guidance upon its completion. We are concerned that EPA headquarters may later prove to be reluctant to allow one region of the country to enact water quality standards different than the rest of the country.

H.R. 4323 will ensure that the criteria and implementing procedures developed by the initiative are adopted and enforced. An essential component of H.R. 4323 requires that the Great Lakes States shall adopt water quality standards for the Great Lakes which at a minimum incorporate the criteria and utilize the guidance called for under that section.

The Great Lakes are remarkable and unique bodies of water, which deserve the special recognition and protection provided them by the Agreement. Because of the failure of our Government's current approach to recognize the requirements of the Agreement, the

health of the Great Lakes ecosystem, including human health, is suffering, and our future is seriously threatened.

The public in the Great Lakes Basin believe in the Agreement, and want to see it fulfilled. If the Agreement is to be worth more than the paper it is printed on, then it must be enforced under the domestic laws and regulations of the U.S. and the Great Lakes States. H.R. 4323 will ensure that the Agreement is incorporated into the legal provisions of the Clean Water Act, and we support its adoption.

Thank you for this opportunity. I will be happy to take your questions.

Mr. NOWAK. Thank you very much, Mr. Eder.

Let's hear now from Ms. Colborn.

Ms. COLBORN. Thank you, Mr. Chairman. I am Theo Colborn, Senior Fellow with the Wildlife Fund and the Conservation Foundation. Much of what I say today draws on a book, "Great Lakes—Great Legacy?"—a two and a half year binational effort by the Conservation Foundation in collaboration with Canada's Institute for Research on Public Policy.

Accompanying me today is Dr. Richard Liroff, Senior Associate, Project Director for the book. In our book, we show that the Great Lakes ecosystem is still stressed from toxic chemicals despite a number of remarkable improvements in recent years. We make extensive policy recommendations, two of which I want to discuss today.

First, we recommend the use of wildlife dependent upon aquatic food sources in the Great Lakes as indicators of hazard to human health when setting standards. We also call for the inclusion of developmental effects when assessing the risk from exposure to persistent toxic chemicals in the Great Lakes ecosystem. Our review of the Great Lakes literature found that of the 16 species that Mr. Durnil referred to earlier, 12 today are currently suffering from a suite of severe health effects that undermine their populations.

Among these are the lake trout and the bald eagle. The most visible devastation, however, is seen among the large colonies of water birds that nest on the islands and along the shores. Because of their large numbers, it is from these populations that wildlife researchers have learned the most. Researchers have discovered that wildlife populations are unstable, because a large fraction of the embryos and offspring never reach maturity. The effects that are undermining the populations are manifested in the offspring, not in the mature animals.

High concentrations of chemicals are found in the dying embryos and offspring, the result of transfer from the mother. Significant associations are found between several toxic components of these chemicals, and toxic physiological changes in the tissues of the affected animals. Researchers have been able to induce the same suite of anomalies in laboratory animals, as seen in the wildlife, with the same chemicals found in the Great Lakes wildlife, and using very high-tech protocol have demonstrated at the cellular level that these chemicals are indeed developmental toxicants.

They can change the course of development of a cell at extremely low concentrations if they are present at a critical time in the growth process. I now ask you to consider the outcome of the group

of children whose mothers consumed two or fewer meals a month of Lake Michigan fish for a period of six years or more preceding their birth. No overt symptoms were noted in the mothers of these children. But testing at birth and seven months revealed that the infants had cognitive behavioral and motor deficits, when compared with a group of infants of women who did not eat Lake Michigan fish.

Mr. NOWAK. But who lived in the same general environment on the Great Lakes?

Ms. COLBORN. That's right. These children are not mentally retarded, but they are compromised in subtle ways. If the problem were to become widespread, a large number of individuals in our population would not reach their full human potential.

In the most recent publication concerning the ability of these children at age four, the results of earlier testing still held. World Wildlife Fund and the Conservation Foundation believe that the weight of evidence from the research I have just described can no longer be ignored.

It is time to act. H.R. 4323 represents a strong first step in this direction. It incorporates provisions of the Great Lakes Water Quality Agreement, domestic law, and sets up Federal matching funds for remedial action plans. It provides legislation establishing deadlines by which programs authorized in the Great Lakes Water Quality Agreement are to be carried out. It also makes the commitments possible by increasing the authorized level of spending on Great Lakes programs.

We are concerned, however, that H.R. 4323 does not directly address the problem of food resources in the Basin. There are two fundamental problems that must be addressed. First, the problem of biomagnification must be dealt with through ecosystem standards rather than water quality standards. Second, the current methods to establish standards to protect human health are based solely on cancer. These need to be updated.

In order to protect the wildlife and humans who consume Great Lakes food sources, it is now time to empower those who set water quality standards with the capability of also establishing ecosystem standards. Ecosystem standards or objectives could be based upon either one or a combination of the following:

First, a stable reproducing population of a designated sensitive species; two, minimum rates of reproduction of a number of species at various levels in the food web; and three, maximum allowable concentrations of chemicals in wildlife tissue.

H.R. 4323, in calling for specific numeric water quality criteria to protect human health and wildlife in the Basin, does not go far enough. We ask you to take H.R. 4323 one step further, and open the door for the use of wildlife indicators as a measure of water integrity. Amend the Federal Water Pollution Control Act so that standards can be set using the wildlife in which the bioaccumulation takes place.

For example, PCBs may not be detectable in a water sample, but because of its physical and chemical properties, it can biomagnify 25 million times between lake water and a herring gull egg. Remember, in order to measure developmental effects, you have to examine the animals, not the water.

Our second recommendation calls for updating the health standards for fish consumption. Current standards are based on (one) total organochlorine compounds, not on their toxic components, and (two) the probability of developing cancers. To assess risk and set standards for exposure to persistent toxic chemicals, developmental effects must be considered as well as cancer. The toxic components of complex chemicals must be dealt with individually.

We appreciate the subcommittee's and Mr. Nowak's leadership in improving Great Lakes water quality. We would be very happy to work with you further and to answer any questions.

Thank you.

Mr. NOWAK. Thank you.

We will now hear from Mr. Weller.

Mr. WELLER. Thank you, Mr. Chairman and members of the subcommittee, for this opportunity to testify today.

My name is Phil Weller, and I am the Executive Director of Great Lakes United, which is a binational coalition of over 180 groups from throughout the Great Lakes-St. Lawrence River region, dedicated to the protection of the Great Lakes-St. Lawrence River ecosystem.

Our membership includes environmental organizations, community groups, unions, small businesses, academic and scientific groups, and governmental bodies. The membership includes groups from Duluth at the western end of the Basin to Quebec City along the St. Lawrence River outflow of the system.

This statement is made on behalf of this community of organizations throughout the Great Lakes region who are deeply concerned about the condition of the Great Lakes ecosystem. I would especially like to acknowledge the presence of Brett Hulsey from the Great Lakes office of the Sierra Club, and acknowledge the additional testimony that I believe has been provided to the committee by the Lake Michigan Federation on specific aspects of the bill being considered here. If you do not have copies of that, I have that with me and I will provide it to the Committee.

Mr. NOWAK. We will make that a part of the record.

[The statement of the Lake Michigan Federation follows:]

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Citizen Action to Save a Great Lake

TESTIMONY OF THE LAKE MICHIGAN FEDERATION

Before the House Public Works Committee, Water Resources Subcommittee, on the Great Lakes Improvement Act of 1990 (HR 4323)

The Lake Michigan Federation offers the following comments on H.R. 4323's Lakewide Management Plan provisions:

1.) Administration: Because the GLWQA embraces an "ecosystem approach" toward rehabilitating the Great Lakes as does newly espoused U.S. EPA policy, and because LMPs are designed to attack Great Lakes contamination from all sources, LMPs must be directed by an official responsible for multi-media management.

Currently, LMP development is geared for development and implementation largely by U.S. EPA water divisions. While these divisions may have the staffing to oversee the daily operation of LMP development, LMPs should not be directed by those divisions. Instead, officials responsible for all media -- such as those at the deputy regional administrator level or higher -- should chair LMP development and implementation with support from the Great Lakes National Program Office.

As an illustration of this need, Region 5 Water Division developed the Strategy without or with minimal input from other critically effected divisions: the Region 5 Air & Radiation Division, for example, played a minor role

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in the Strategy's development despite the fact that the atmosphere is believed to be the largest source of some of Lake Michigan's most hazardous pollutants. Clearly, LMPs should have the benefit of input from all affected divisions. Only U.S. EPA officials responsible for the various divisions can provide that administrative perspective.

2.) Zero Discharge as a federal policy is undisputed. The Great Lakes Water Quality Agreement (GLWQA) unequivocally states that the U.S. and Canada must:

> virtually eliminate the input of persistent toxic substances in order to ensure the continued health and productivity of living aquatic resources and human use thereof.

and that:

> The philosophy for control of inputs of persistent substances shall be zero discharge.
>
> [GLWQA Annex 12, 2 (i) & (ii).]

Federal legislation supports the policy of zero discharge by stating firmly: "it is the national goal that the discharge of pollutants into navigable waters be eliminated by 1985." [Federal Water Pollution Control Act Section 101(a)(1) (emphasis added)].

Lakewide Management Plans are, however, "designed to reduce loadings of Critical Pollutants." [GLWQA Annex 2, 6(a)]. A

clear discrepancy thus exists between the goals of LMPs as stated in the GLWQA (toxics reduction) and other provisions of the GLWQA as well as the Clean Water Act (toxics elimination). Although Congress must comply with the GLWQA's terms, nothing preempts Congress from taking those further steps necessary to safeguard Great Lakes' waters: directing the U.S. EPA to pursue LMPs as a means to achieve toxic substances reduction and zero discharge/virtual elimination is such a step.

3.) Implementation: Lakewide Management Plans are not the first mechanisms of their type to try to address toxic substances: others have been developed and have fallen by the wayside. Congress should, with HR 4323, take the steps necessary to prevent LMPs from meeting the same fate.

In 1986, the U.S. EPA and Lake Michigan states finalized a "Lake Michigan Toxic Pollutant Control/Reduction Strategy" (the Strategy) to reduce nine "Pollutants of Concern," many of which are the same that LMPs are now supposed to address. However, the Strategy's objectives have gone largely unachieved.

While the Strategy's fate was due mostly to a lack of resource commitment, this subcommittee can take steps to ensure greater chances of success for the LMPs: set implementation deadlines. Although implementation, especially for plans of this magnitude, cannot be specifically pinpointed, pragmatic and general timeframes should be provided. Whether this subcommittee provides these timeframes with extension allowances or directs

the U.S. EPA to recommend reasonable deadlines are options that should be exercised to encourage LMP implementation.

However, LMPs must be implemented in substance as well. The U.S. EPA Administrator has at least implicit authority to use LMPs as guidelines for state water quality standards under Clean Water Act Section 304. Also, Section 303 -- specifically 303 (d) -- requires states to develop water quality standards which will achieve the Act's goals, including fishable and swimmable waters and waters free from discharges of toxic substances in toxic amounts. LMPs further provide solid opportunities to fulfill Section 103, which requires interstate cooperation and uniform laws. These are some principal federal statutory provisions which the U.S. EPA can and should invoke to implement LMPs.

4.) Total Maximum Daily Loads: In addition, the U.S. EPA should incorporate "total maximum daily loads" (TMDLs) into LMPs as a means of achieving zero discharge. Clean Water Act Section 303 (d)(1)(D) gives the U.S. EPA authority to estimate TMDLs for thermal pollution. HR 4323 should expand U.S. EPA authority to do so for toxic substances within the LMP framework.

5.) Coordination requirements: Although HR 4323 is duplicative of the GLWQA's LMP requirements, Section (B) of the bill's LMP provision should be amended for the U.S. to "seek" comment from the Canadian Government on the Lake Michigan LMP. Similarly, (C) should be expanded to require the submission of LMPs other than

the Lake Michigan LMP to the IJC after consultation with Canada.

6.) General: The bill selects specific provisions from the GLWQA and requires their fulfillment. Although Clean Water Act Section 118 requires the U.S. to seek to attain the goals of all GLWQA provisions, a court of law could view HR 4323 as an indication that Congress, by not including other GLWQA provisions in the bill, does not intend for those other GLWQA provisions to be pursued as vigorously. This potential roadblock can be avoided by including in the "PURPOSES" section a declaration that all provisions of the GLWQA must be attained and that provisions in this bill on only some GLWQA provisions is meant to affect enhanced guidance in achieving them.

Mr. WELLER. During this presentation, I would like to convey four essential messages. The first of those messages is that there is an urgent need for accelerated and expanded cleanup, remediation, and pollution prevention in the Great Lakes region. Secondly, the Great Lakes Water Quality Agreement originally signed by Canada and the United States in 1972 and revised in 1978 and again in 1987, is an effective blueprint and framework for action to address the problems of the Great Lakes ecosystem.

Third, the citizenry of the Great Lakes region feels betrayed by the failure of the Governments of Canada and the United States to fully uphold the commitments made in the Great Lakes Water Quality Agreement. Finally, I would like to add that we are very pleased with the leadership to create the Great Lakes Water Quality Improvement Act of 1990, and believe that this legislation will be very important in increasing the fulfillment of the promise contained within the Great Lakes Water Quality Agreement.

As you are all aware, the Great Lakes represents an amazing 18 percent of the world's surface fresh water. But the quality of the Great Lakes waters and landscape have been greatly diminished, and many of the speakers before indicated the extent of that damage. In particular, lakes have accumulated significant concentrations of pollutants. They have accumulated in bottom sediments and tissue of fish and other wildlife. The twisted beaks of cormorants and terns, and tumors in fish that exist in certain areas of the Lakes are graphic evidence of the detrimental impact of these chemicals on wildlife and on humans.

A message about the significance of the threat that exists, and the need for additional action, was issued recently by the Conservation Foundation and the Institute for Research on Public Policy in Canada. Dr. Colborn will discuss the conclusions from that research.

Warnings have also come in recent weeks from the International Joint Commission. I would like to acknowledge the significance of the Commission's presentation here today and congratulate them on the frank and candid manner in which they wrote their report. That report has been extremely important conveying the significance of the issues of concern in the Great Lakes region.

A particular item of significance about that report was the conclusion that there is a threat to the health of our children emanating from our exposure to persistent toxic substances even at very low ambient levels. These reports have added legitimacy to what individuals and scientists from throughout the Great Lakes Basin have been observing—that the Great Lakes are being grossly damaged by pollution and other factors, and that that damage is unacceptable and avoidable.

While some progress has been made in addressing conventional pollutant problems and reducing the loads of some chemicals such as DDT, this progress has not been sufficient to protect human health and restore environmental quality. We continue to expose humans and animals to unacceptable concentrations of toxic contaminants. It is therefore imperative that we adopt strong uniform water quality standards to protect fish, wildlife and humans.

We are very pleased that some progress has been made in developing uniform criteria, and believe that the Great Lakes Water Quality Improvement Act will strengthen that effort.

The Great Lakes Water Quality Agreement of 1987 is an effective blueprint for addressing the existing problems. It calls for a goal of zero discharge of persistent toxic substances, a goal that is both practical and possible. Unfortunately, however, the governments have failed to uphold the commitments made in the Water Quality Agreement, and enshrinement of this agreement in law appears necessary.

The renegotiation of the Great Lakes Water Quality Agreement in 1987 offered hope to the residents of the basin that the problems in the region could be resolved. In the two and a half years since the most recent agreement was signed, citizens have however become increasingly frustrated with the snail's pace of progress in protecting and rehabilitating the Great Lakes.

I would like to address two important program commitments of the Government in that 1987 revision, the Remedial Action Plan process, and the lakewide management plan process. Since the 1970s there has been a recognition that specific areas in the Great Lakes—harbors, bays, rivermouths and connecting channels—have severe water quality problems. Degraded conditions prevent the public from enjoying these areas. In many areas, fish are contaminated and the advisories against consumption are in effect. Swimming in these areas is often unsafe.

In 1987, the Water Quality Agreement was revised, and the Governments of Canada and the United States formally agreed to develop remedial action plans for these areas of concern. The public lauded this commitment as a forward-looking, positive approach to the problems in the areas of concern. Citizens in each of these areas have proceed to put considerable energy into developing the RAP process, and view it as a source of significant hope for correcting the problems.

The hope of many residents is that the RAP process can undo some of the contamination that exists, and can focus people's ideas, energy and money to regenerate communities whose natural features have been devastated by human abuse. Affected communities in the areas of concern must work as equal partners with the agencies responsible for developing RAPS, and to ensure that this partnership occurs, Great Lakes United advocated a strong public role in all Great Lakes programs during the 1987 renegotiations of the Great Lakes Water Quality Agreement.

Three years after the original planned completion dates for RAPs, only one RAP has actually been formally recognized by the Commission as completing its Stage 2 process. In other areas, first stage RAPs, the description of the problem, have not yet been completed to the satisfaction of either the IJC or the public.

In most areas, work has not begun on what the remedial actions will be. These delays have been primarily the result of the failure of the governments to devote adequate resources to the planning process. Great Lakes United therefore strongly supports the adoption of concrete timelines for RAP development as required by the Great Lakes Water Quality Improvement Act.

These programs need additional commitment of effort and resources. The adoption of timelines and authorization of funding for States are essential elements to help RAPs realize their potential.

Citizens are devoting considerable time, energy and money to the RAP process and want to ensure that they are not wasting their efforts. Citizens concerns for RAPs focus on two questions—what should a RAP contain and how can we ensure that the RAP is implemented.

Citizens have identified six key elements that must be incorporated within the Remedial Action Plans. The RAPs must embody community vision and support, they must incorporate the ecosystem approach, they must achieve zero discharge, they must clean up contaminated sediment, they must establish land use policies for the area of concern, and they must create and restore wild areas and habitat.

It is Great Lakes United's hope that these efforts will be fully rewarded by the restoration of a clean and healthy Great Lakes ecosystem. The support the Great Lakes Water Quality Improvement Act offers to RAPS would be extremely helpful.

A second area I would like to address is lakewide management plans. This was one of the other central commitments made by the two governments in 1987 when they renegotiated the Agreement. These plans were intended to be lakewide RAPs. They focused on identifying additional remedial measures that are needed to achieve the reduction of chemical loadings and to eliminate the contribution to impairment of beneficial uses from critical pollutants.

These include air, land, runoff, direct discharges, and contaminated sediments. The problem of contaminated sediments remains particularly acute in many areas of the Great Lakes and requires additional attention. An important need is the development of technology to decontaminate sediments and the extension of funding for the sediment demonstration projects, as proposed in the Great Lakes Water Quality Improvement Act, will help to address this acute need.

As has been the case with Remedial Action Plans, the progress of the Government to date in developing lakewide management plans has been limited. Only one plan, that for Lake Ontario, has actually begun.

It is the belief of Great Lakes United that lakewide management plans need legislative support and that the EPA needs additional resources to undertake these efforts. We support the establishment of timelines for all the lakewide management plans and express our support for expanded funding to the EPA to carry out this important activity. The lakewide management plans are the necessary fabric binding together the efforts to achieve zero discharge of persistent toxic pollutants into the Great Lakes. Without these plans we will continue to have unacceptably high levels of toxic contaminants within the system and the unintentional exposure of humans, fish and wildlife will continue.

In conclusion, I would like to emphasize that the Great Lakes Water Quality Agreement between Canada and the United States is a visionary and precedent setting document. If fully implemented it would reverse the environmental degradation of the Great

Lakes ecosystem and make great strides to improve human and wildlife welfare.

The enshrinement of some of the important commitments of that Agreement into law as proposed in the Great Lakes Water Quality Improvement Act would be major steps toward achieving cleanup of the Great Lakes. The cleanup and protection of the Great Lakes, once achieved, will provide to the United States and the world a dramatic example of the ability of humans to come to grips with restoring and protecting the environment on which we depend.

Thank you.

Mr. NOWAK. Thank you very much for all your testimony. You really have given the committee some basic support and some new information to use in convincing some of our colleagues not only here in the Congress, but in the Administration, to consider the problems in the Great Lakes.

Your work with the research and the time and energy you have spent on these RAP plans, many of your members across and around the Great Lakes—Tim Eder was in our Buffalo area and has composed and done work with others in the RAP plans. As they rightly point out, they have reached a saturation point of information and they seem to have come to if not a complete stop, at least a delay in the ability to make some progress in the process and move forward, and actually completing them.

I think some of that is due to lack of funding. Perhaps some of it is due to just lack of basic knowledge about the ecosystem and looking at—as you just mentioned, Mr. Weller—the timeliness of actually doing something about it, and having the information and knowledge of what to do when we reach that point, or the recommendations that could possibly come out.

Some of the information that has been given to me is that there, as in the Buffalo River, and it would probably be true of all the 42 or now 43 hot spots, is that there are very heavy accumulations of toxics and contaminated sediments in the soils of some acreage within the river or harbor area that have been contaminated and remains there and keeps leaching out as that soil is turned, whether by large propellers or the wind action that reaches some higher levels than usual.

If that concentrated and highly toxic area was removed, you could greatly enhance the whole system with limited kinds of action. In other words, you would not have to go from the Grand Central Elevator in Buffalo all the way through the system to the lighthouse. You could pick and choose and perhaps effectively remove 80 to 90 percent of the persistent toxics in the system.

I wonder if you have focused on that, and if you think there is any other way we could speed this process up, and if you have any other remediation you feel should be considered throughout the whole system? Tim, do you have any thoughts on that?

Mr. EDER. Yes, Mr. Nowak. I would be happy to try to answer your question.

We have recognized, as you have pointed out, that contaminated sediments form a reservoir of pollutants that are now themselves a source of continuing pollution to the open waters of the Great Lakes. We recognize that to fully cleanup the Great Lakes will not be possible until we address contaminated sediments.

One of the recommendations that we have put forward to the Governments is that they take this information into account when allowing discharges of additional toxic substances. For example, we have said that you can't assume that there is available capacity to add more toxic pollutants into the Great Lakes or the Kalamazoo River or the Buffalo River, as the case may be, until you remove sediments as a source of pollution. We have tried to use the legal requirements of NPDES permits to secure binding commitments to force the cleanup of those contaminated sediments before adding any additional pollution.

We think that one of the weaknesses in the administration of the Clean Water Act is that the focus has been so much on point sources that we have not used the tools available under the Act to attack nonpoint sources, including contaminated sediments.

Mr. NOWAK. Would anyone else like to comment on that?

Mr. Weller?

Mr. WELLER. I would just say that I think there are a couple of essential needs with respect to contaminated sediments and the sources of contaminants to those sediments. First, I think it is critical that we develop a better information base on the extent of contamination. I know that the ARCS program is trying to come up with additional information about the five specific sites, and the potential for remediating those sites.

But clearly, it is a case that throughout the areas of concern the extent of sediment contamination is not clear. As you have pointed out, it may not be necessary to remediate all of those sediments in the areas of concern, but selected hot spots within the areas could be identified and remediated. We certainly believe it is necessary to develop a better system of understanding the extent of contamination and the need, then, for some sort of criteria to establish the cleanup programs for those areas.

The second thing is that I think it is essential to recognize that the problem of contaminated sediments in many of the areas of concerns will not be solved and should not be solved unless the direct dischargers, either through permitted discharges or nonpoint sources, are shut off. Certainly in the Buffalo River, as you are well aware, the combined sewer overflow problem is a significant contributor to the contamination of the river and that is something that is fairly constant throughout the 42 areas of concern, and something that needs attention—the stopping of those sources. So when we do actually clean up contaminated sediments, we will not be doing a job that will have to be done again in five to ten years after it has actually been done.

Mr. NOWAK. Those overflows are now being tested as part of the RAP procedure. Hopefully we will have an indication of what spills out over a several-month period. The Sewer Agency, as you know, feels that the overflows will be receiving the secondary flush of the system, the first flush going right to the treatment plan. that's on the island.

Once that is flushed, they think a lot of the overflow will be pure stormwater. That remains to be seen, and I hope that they are correct. I think you are right in looking at the overflow problem. In the Great Lakes it is a much more harmful addition, because it really depends on the type, and how much the first flush will take

at any overflow. Some of the overflows with the first two drops of water they will start to overflow. That is not the case in our system. I think there is a tougher overflow problem when you leave Buffalo and go to Niagara Street, you are going to find a tougher overflow coming out of North Buffalo. That will contain higher bacteria counts and everything else, because it will contain some sewage material as well.

Generally, if we went up to Michigan and looked at some of the overflows there, it would seem they are going to have a much, much higher contribution there. It would be greater than perhaps in the Buffalo area, or New York City, with 502½ overflows. They have a tremendous input into that system, and we had the bill which we have passed to take the sludge out of the ocean.

The contributions really were not known, but after the hearings we really got an indication that the sewer flows were, perhaps in terms of the medical waste, the vials and other identified beach pollution problems, certainly seemed to come from those overflows, rather than sewage sludge reforming vials and floating vials 106 miles back into port into the Coney Island Beach.

So we have a request from the League of Cities to do something about the combined sewage overflow.

Working with all of these combined inputs, we have to determine where the priorities are going to be in terms of handling some of the contaminated sediments, especially where you can identify specific point sources from specific companies over long period of time. There are several areas in the Buffalo River, of course, that are identifiable. You can go to the pipe and see that it is black now. For years that pipe was the flushing out of a plant.

So I think we have an easier time than some other areas, but again, it varies a great deal. The inputs, whether it be direct point, or sewage overflow, is going to vary, and will have to be identified through the RAP process. Hopefully that's why we have 42 of them going forward. I think once some of that is removed, where we have some tremendous amounts of discharge, the system at least will become swimmable and fishable. If that is the case, you will have gained a great deal of progress in being able to rehab the land base around those areas.

Let me turn to something that Dr. Colborn has made mention of. In the Conservation Report, you talk in terms of human conditions, human health. You have talked about subgroups at risk and associated the offspring of people—women who consumed sizable amounts of fish. You made an initial statement that available public health data on birth defects and cancer incidents are inadequate as indicators of health effects that may arise from the biomagnification, and the bioaccumulation of toxic substances in the Great Lakes food web.

Can you give us a description of how you are testing that, what periods of time were involved and what others seem to embrace those findings? How was that study put together, and why the direct health effects and cancer incidents are inadequate as indicators of health problems? What was in the study that led you to those conclusions?

Ms. COLBORN. We first started the study by looking at the wildlife around the Great Lakes and producing a huge matrix, in which

this suite of anomalies appeared. Not cancer. We found cancer reported in several of the whales, the St. Lawrence estuary whale, and also tumors in various species of fish that are bottom feeders in the Great Lakes. But those tumors were associated with known concentrations of polyaromatic hydrocarbons, or chemicals that are not organochlorine—they are not chlorinated, but they are definitely carcinogens.

So there was an association made there with those chemicals. But as far as the rest of the wildlife are concerned we see, as Mr. Durnil stated, wasting, behavioral changes, immune suppression, abnormal metabolism, and then the inability of the embryo or the offspring to survive through to adulthood. This is what we were looking for.

If you go then from that information, I started looking at the public health records that were available; cancer mortality rates, death rates, and the various registries that were available to look at unusual outcomes of children born around the Great Lakes. This information is very, very patchy, it is not available on a regional basis at a level at which you can make major decisions. But it was quite obvious that, yes, there were some areas around the lakes where there was more cancer, but these were also areas of high industrial activity and dense population. This held nationwide. This is a consistent pattern nationwide. The Lakes were not an exception.

There were also areas around the Lakes where birth defects appeared in clusters one year but not the next. Again, very patchy, but nothing consistent and nothing you could say was indicative of something happening. If you go back and look at what developmental effects can do to animals, they can affect their ability to survive, they can effect gross birth defects, which we are not seeing in humans. As I said, you could not find it.

But what about the social and behavioral changes that could possibly be taking place in individuals? This is what we thought we needed to look for.

Unfortunately, there are no data bases out there we can turn to, count on, or to do this. The Jacobson studies that I referred to where they looked at the behavior, the cognitive and motor development of offspring, is probably the only thing we have to lean on now. When those studies were first released, people thought the Jacobsons were seeing a regional effect that these people were provincial; they lived in rural Michigan there was a lot of inbreeding; and this was possibly the reason for the abnormal development characterized in these children.

But if you go back and look at the information, the women who volunteered and are cooperating in this project are rather well-educated. They are not provincial. People suggested that perhaps we were seeing fetal alcohol syndrome. These studies have been controlled for alcohol and for cigarette smoking. These children now at age four are showing the same effects that were seen at birth.

I would like to point out that when the studies on lead were first released, people put their tongue in their cheek also and said they couldn't count on psychiatrists. Lead studies were ignored for a while. Dr. Needleman was just testifying in Washington last week, and as he said, we now know that at very low levels of lead, con-

centrations that we never expected, we are finding cognitive deficits in children. Children cannot learn, they have study problems, and behavioral problems.

Our concern lies in the fact that possibly these organochlorine chemicals that do accumulate in reproductive tissue and can be passed on to the offspring, and are present at the time of conception, through those early stages of development, could possibly be affecting these children. The evidence is all there, the only thing we have not done is a human experiment, and I don't think we ever will be able to do that.

Mr. NOWAK. Thank you very much.

Let me turn to Mr. Stangeland for his questions.

Mr. STANGELAND. Thank you, Mr. Chairman.

I want to thank you for your testimony. I think it sheds a good deal of light on what we are dealing with.

I have one general question for Mr. Weller, and Mr. Eder and Dr. Colborn, you may want to respond to this as well. You are quite critical of the lack of commitment to fulfill the agreements that have been signed. I guess you go back to the beginning of the agreement with that criticism of commitment.

I wonder if you can give us an indication—is that commitment lacking because of a lack of resources, is it lacking because of a lack of cooperation between States and provinces and local governments, or is it lacking because we don't have a basic law that mandates that the agreements ought to be fulfilled, so far as it is possible within resources?

Would you care to comment on that?

Mr. WELLER. I would say in response that the main concern is one of resources. Certainly that is a complaint that the States have with respect to the Agreement. There are a number of the activities that have been suggested to be undertaken through the Agreement process that have not gotten the funding that they need to be completed. The Water Quality Improvement Act would be a significant step in addressing that particular need.

I think as the members of the States indicated earlier, the level of resources may not be enough even then to address sufficiently the full range of commitments in the Agreement. It certainly makes a giant leap forward over where we are now.

Additionally, I think it has been a case that a sense of the compelling need for the programs and the full implementation of these programs has not existed and certainly the work of Dr. Colborn and the statements of the International Joint Commission have helped to clarify the compelling nature of the problem and the extent to which we need to undertake the commitments that have been made, and strengthen that commitment.

I think there has been a coalescing of public opinion and an improvement in the sense of our understanding of the problems, such that there is very strong public support for the kind of initiatives that you are contemplating through this particular bill. That I think will be a significant factor in generating the kind of necessary commitment that improvement in the Great Lakes will require.

Mr. STANGELAND. Do you have any comment, Mr. Eder.

Mr. EDER. Yes, Mr. Stangeland. I would like to say that I view the current inability and lack of progress in achieving the agreement goals as being related fundamentally to two problems. One is the lack of resources. We have not had consistent or adequate funding to either study the problems, gain the necessary information about the effects of these toxic substances, or to develop the additional scientific support for developing new water quality standards and criteria necessary to support controls.

The other problem, however, is a political one. There has not been a political will on the part of the U.S. EPA to take seriously the promises that were made, the very visionary and progressive promises that we made, in the Great Lakes Water Quality Agreement.

We hope that that is starting to change with Mr. Reilly's attention to the Agreement and some of the commitments you heard from Mr. Adamkus. The truth of the matter is that there are forces out there that argue all along the way whenever there is an attempt made to strengthen controls or to eliminate sources of toxic pollution.

The industrial community is very well-funded, and is able to put forth a wealth of scientific information to combat the type of information that Dr. Colborn is presenting. What is clear to us is that there is enough information out there right now to take action on these problems. There needs to be a commitment and a directive from Congress to force EPA to take that action.

Mr. LIROFF. Mr. Congressman, I would like to respond to your question.

Mr. STANGELAND. Sure.

Mr. LIROFF. The resource problem is a very serious one. We pointed out in our "Great Lakes-Great Legacy?" report that in the EPA budget alone between 1980 and 1987 there was a 60 percent drop in funding for Great Lakes research and for promulgation of Great Lakes programs. To the extent that funding was provided to EPA and to a number of other Federal agency programs concerned with the Great Lakes it was only because of the insistence by the Congress that these programs be given any funding at all.

A second obstacle to implementation of the Great Lakes Water Quality Agreement is, as has been pointed out by many people before, the problem of a lack of integration of the Agreement into domestic law.

A third factor which no one has discussed yet, but I would call the Committee's attention to, is the organization of EPA for addressing Great Lakes water quality problems. I think we have champions of the Great Lakes in Mr. Adamkus, and Carol Finch, and other people working at the Great Lakes Program Office.

I think there has been a problem through the years in getting headquarters attention to the Great Lakes issues, getting the Great Lakes recognized as a national problem deserving a national response. I am heartened to see that Mr. Reilly has distributed this memo within headquarters calling for review of the national programs as they relate to the Great Lakes, and I urge this committee to take a careful look at the response within the Agency to that memorandum, particularly to responses which pertain to the adequacy of funding for various Agency programs.

It is simply not enough to respond to Great Lakes issues with the Great Lakes Office. We have to take a holistic approach, as mentioned before. The air office has to be concerned, the water office has to be concerned, the hazardous waste office has to be concerned.

Mr. STANGELAND. If we were to pass a law here, can we anticipate that Canada would pass a similar law, or is it not necessary in Canada? Will they meet their commitments through the Agreement?

Their government works somewhat differently than ours does. Can you comment on that? Would we anticipate that Canada would take similar action by law, or is it not necessary?

Mr. EDER. I would just say that definitely action is needed on the Canadian side of the border. Make no mistake about it—a large portion of the pollution in the Great Lakes comes from the Canadian side of the border. Canada's Chemical Valley is across the river from Port Huron, Michigan, in Sarnia, Ontario. That has long been a source of many problem pollutants, and still is.

The North Shore of Lake Superior—there are about eight pulp and paper mills, several of which discharge dioxin into Lake Superior. Ontario does have a process underway to reform their own regulatory system. It is called the Municipal and Industrial Strategy for Abatement. They have a long way to go to do the job as well as the United States.

We are fortunate to have among us today someone who is a Canadian citizen. He probably has some information to shed on this as well. Phil is from Canada.

Mr. WELLER. Great Lakes United is a binational organization and I am a Canadian. In fact, I spent the early part of this week in Toronto with the Minister of the Environment, talking about exactly this issue with them. As Tim has pointed out, a significant percentage of the problems in the Great Lakes are attributable to sources in Canada. A major effort is necessary to improve the programs within Canada to address the commitments made under the Water Quality Agreement.

Certainly our criticisms of the U.S.'s effort with respect to the Water Quality Agreement are ones that are shared by Canada. There are some areas where one government is ahead of the other. It is necessary to incorporate many of the elements of the Agreement into laws of both nations. We, as a binational organization, have been advocating a similar message to that has been given here today, within Canada.

Mr. STANGELAND. Don't misunderstand me, but I don't think we ought to sit and wait on Canada. There is nothing wrong with us taking the lead. I think it is a prime resource and the concern about it is interesting. The Chairman and staff might want to help refresh my memory, but as best I recall, it was earlier this year when we had a hearing on toxic hot spots and bottom sedimentation. I believe we had EPA in. Amazingly enough, they advised us that they had just undertaken a day or two before the first attempt to remove some toxic contaminants from the lake bottom.

But it was just ironic that when they came to testify that they had just begun. Now I am advised that they really aren't doing anything, they are still working on the memorandum of agree-

ment. At that time the testimony was that they were still putting the toxics into the water, and the question that I asked was what good does it do to take the toxics out of the bottom, if you are just going to dump more in? When can we anticipate not putting toxics back in?

I believe it was you, Dr. Colborn, or maybe it was you, Mr. Eder, that said you have to get some toxins out before you can put more in. We ought to try not to add anymore in.

I have one question. We have a vote, and I have one last question I would like to bring up. I am aware, and I wonder—was it the National Wildlife Federation, Mr. Eder, that had the article in "In Fisherman?" Or was it the Conservation Foundation? The article published about 3 months ago was about the safety of eating fish out of the Great Lakes?

Mr. EDER. It was likely an article relating to a study that the National Wildlife Federation completed about a year ago.

Mr. STANGELAND. I didn't read the article in total, but I followed the brouhaha that it created. "In Fisherman" was attacked for taking the side that the fish were not edible, and of course that affected the tourism and fishing industry, and "In Fisherman," as I recall, took the stance that they were trying to be an impartial forum to present a point of view.

The follow-up to that, as I recall, is that there was quite a disagreement with FDA, and also the States themselves, with some of the figures you had presented on the safety of the fish. I am wondering if that is part of our impediment too, that there are some people that just are not willing to face up to the facts that there is a problem here, and a cause for concern, and they want to pooh-pooh it away.

We cleaned up Lake Erie, we have fish there now, as far as fish being able to live there, and supporting sport fishing—if you can't eat them that's another matter.

Is there a big scientific disagreement as to the level and the hazard we are facing?

Mr. EDER. There is a lot of scientific disagreement about the risks posed by consuming Great Lakes fish. We did a thorough study, and are very confident of the conclusion that we reached, which characterized the cancer risk, and also the risk of reproductive and developmental effects similar to those that Dr. Colborn just described.

Undoubtedly there was a lot of controversy surrounding our study. The reason for that controversy is that there is uncertainty. There is uncertainty in predicting cancer risks, and there is uncertainty in predicting other sorts of risk. The problem is that those toxics are in the fish, and people are eating those fish, and that fact cannot be ignored. That means two things. That means we have to eliminate the source of those toxics, and we have to take precautions in the meantime to minimize our exposure to the biggest, fattiest and worst fish and particularly protect the health of people like young children that are especially susceptible.

We were very surprised at the level of controversy generated by our study, and we do feel that there are a lot of people that refuse to acknowledge that problem, and have a taken a "blame the messenger" approach, which we think is unfortunate.

Mr. STANGELAND. Thank you.

Mr. NOWAK. Thank you very much. Unfortunately, that was the second bell. I would like to make a couple of statements in conclusion of this testimony. It certainly has been helpful. I think the Canadian presence here today plays an important role, and certainly the IJC Chairman who stayed throughout the whole hearing—it is the first time we have captured that audience.

Looking at new approaches to this, perhaps the Clean Air Act and the involvement of the two governments—if we could get EPA to go back with Environment Canada and start to look at some of these problems, and look at the amount of pollutants that are coming in. If you look at Hamilton Harbor, and Sarnia and some of the other places, you have substantial inputs. As we move through the midwest, we can see that perhaps industries have shut down, have stopped contributing.

But there are other, broader inputs that are entering the Great Lakes. It will take cooperation. This is one system, again, and we can concentrate all we want in eliminating certain contributions to it, but if we don't have the cooperation and the same level of commitment from the Canadians, we are going to have out own State leaders saying they will not spend all of this, and with the Free Trade Agreement, it will be relatively easy for industry movement across boundaries.

We talked about State competition, but what about the international border that is so tough to get across? We can walk across it now. We are going to be in that kind of atmosphere, in a business vein. Locating a plant for an expansion is perhaps going to take resources and availability of water into consideration , but of course, also what can he do with the treatment of what comes out of the plant.

We have to be very careful. I hope that the IJC looks at that in the greater total picture than perhaps they had the ability or the time to do in the past. We can get that kind of commitment and more conversation between our two nations as we hopefully move forward with our own cleanup so that it is coordinated. The inputs do move throughout the system. We have to get that kind of cooperation if we are going to get the effects we want by spending this amount of dollars, and everybody then would feel much more confident in investing, if the whole system is making progress at the same time.

We will certainly be looking at that and trying to see what we can do for that kind of coordination in the future.

Again, I had some other questions in the health-related area that I would like to submit at a later date. We will try to also see if we can't bring about another initiative that may go to the next step within that study and try to verify some of those health effects, and look at the broader questions. When we talk about fish advisories, your advisories said I could eat one perch a year. That was the conclusion in the newspaper. Whether or not that's the level we should be looking at, more has to be done in that area, because people are eating Great Lakes fish and they are still fished commercially. Not at Dunkirk, anymore, but I understand up in St. Catherines and some other places in Canada. Those fish are then brought to Buffalo and sold in the restaurants. Is there any differ-

ence whether they were caught on the American side or the Canadian side?

Mr. EDER. Of course not.

Mr. NOWAK. I don't know, and I don't know what the Canadians are going to do about that fishery. Should they put a label on that fish caught in Lake Erie, up in St. Catherines? Or should we just serve the fish and have everybody eat it?

Hopefully we will be able to move together on all these initiatives, and I look forward to your input as we move forward with these initiatives.

[Mr. Eder's prepared statement appears on page 134.]

[Mr. Colborn's prepared statement appears on page 112.]

[Mr. Weller's prepared statement appears on page 215.]

Mr. NOWAK. We now stand adjourned.

[Whereupon, at 1:17 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

PREPARED STATEMENTS OF WITNESSES

STATEMENT OF
VALDAS V. ADAMKUS
GREAT LAKES NATIONAL PROGRAM MANAGER
REGIONAL ADMINISTRATOR, U.S. EPA REGION V
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
OF THE
HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

May 2, 1990

Good morning Mr. Chairman and members of the Subcommittee. I am Valdas V. Adamkus, U.S. EPA's National Program Manager for the Great Lakes National Program and the Regional Administrator of Region V. I am accompanied by Carol Finch, the Director of the Great Lakes National Program Office. We are pleased to be here today and we thank the Subcommittee for the opportunity to discuss Agency activities in the Great Lakes.

Introduction

I will address the Great Lakes Advisory Committee efforts in implementing the U.S./Canada Great Lakes Water Quality Agreement (GLWQA) and the status of the Great Lakes Water Quality Initiative. I will also discuss progress of the Assessment and Remediation of Contaminated Sediments program, Remedial Action Plans and Lakewide Management Plans.

Great Lakes Advisory Committee

The health of the Great Lakes has been a priority in the EPA for years. Significant progress has been made in addressing Great Lakes pollution problems. Yet much still needs to be done to protect this vast, highly productive natural system.

Pollutants are entering the Great Lakes ecosystem from a number of pathways, including air deposition, point and nonpoint sources, and Superfund sites. To address the loading problems in the Great Lakes and the interdependent nature of the ecosystem, we are adjusting our media-by-media regulatory orientation in favor of an integrated management approach. Managing the Great Lakes from an ecosystem perspective conforms with the spirit and intent of the Great Lakes Water Quality Agreement. In addition, under Section 118 of the Clean Water Act, Congress charged the Great Lakes National Program Office (GLNPO) with carrying out the responsibilities of the United States under the Great Lakes Water Quality Agreement.

The Great Lakes offer an ideal opportunity to fashion a workable, multi-media approach to pollution problems that could serve as a model for ecosystems elsewhere, as well as for the Agency generally. Part of the challenge in this effort is ensuring that an Agency-wide, multi-media perspective is brought to bear on all Great Lakes policy issues. To help accomplish

this, changes are being made in the Great Lakes Advisory Committee (GLAC).

The Great Lakes Advisory Committee is the EPA internal coordination mechanism which provides advice to the Agency's Great Lakes National Program Office on policy issues effecting the Great Lakes Basin. On April 18, 1990, William K. Reilly, Administrator of the United States Environmental Protection Agency sent a memorandum regarding cross-media management in the Great Lakes to EPA Assistant Administrators, the General Counsel, the Inspector General, Regional Administrators for Regions II, III, and V, and Associate Administrators. In this memorandum, Mr. Reilly stated that the membership of the Great Lakes Advisory Committee will be expanded to include all Assistant Administrators. EPA Deputy Administrator F. Henry Habicht II will chair the Committee for the first 6 months of this new membership. After that, Mr. Reilly and Mr. Habicht will assess the progress of the Committee, and select an appropriate chairperson.

Mr. Reilly requested that each Assistant Administrator review his or her programs and funding policies and provide recommendations to the Great Lakes Advisory Committee on the specific contributions their office could make toward a coordinated, multi-media approach to the Great Lakes' environmental problems. Mr. Reilly has requested these

recommendations be made by the end of May 1990. Mr. Reilly also requested that a senior level contact be designated by each office to provide day-to-day linkage to the Great Lakes National Program Office.

This coordinated multi-media approach within EPA will complement the efforts of the U.S. Policy Committee which GLNPO chairs. The U.S. Policy Committee is the consortium of Federal agencies, states, and EPA regions dedicated to implementing the U.S. responsibilities under the Great Lakes Water Quality Agreement. The GLAC and the U.S. Policy Committee are complementary and will aid in fully addressing environmental problems in the Great Lakes. These committees respond to the Agreement requirements for more direct management by the U.S. and Canada. The opportunities to pursue cross-media and pollution prevention strategies are considerable. The solutions generated from this working model will be useful when addressing environmental problems in other ecosystems.

Great Lakes Water Quality Initiative

Under the Great Lakes Agreement, the U.S., as a signatory party, commits itself to the objective of restoring and maintaining the chemical, physical and biological integrity of the waters of the Great Lakes ecosystem. Implementation of the Agreement has been hindered by lack of consistent water quality criteria and guidance specific for the Great Lakes Basin. The

Great Lakes Water Quality Initiative represents a significant effort on the part of the United States Environmental Protection Agency to move forward with implementation of the Great Lakes Agreement by utilizing the existing authorities of the Clean Water Act. The Initiative is designed to ensure a more consistent approach to meeting the obligations of the United States under the Agreement, ensure appropriate public participation in decision making processes related to the Agreement, and to provide a sound basis for negotiating water quality objectives and programs with Canada.

The key to improving implementation of the Great Lakes Agreement is the development of technically sound Great Lakes water quality guidance, which States can use in reviewing and revising their water quality standards. Under the Initiative, guidance specifically designed for the Great Lakes Basin will be developed, including guidance for: (1) water quality criteria for human health, aquatic life and wildlife; (2) implementing procedures; and (3) anti-degradation policy. Great Lakes specific pollution prevention proposals will also be developed so that the U.S. can proceed towards the long term goal of virtual elimination of persistent toxic substances.

USEPA hopes to have Great Lakes specific guidance ready for the eight Great Lakes States to use in reviewing and revising their water quality standards in the next triennial review ending

in 1993. This is a highly ambitious time frame, but the States have agreed to use completed products of the Initiative once those products are approved by the Steering Committee. It must be emphasized however that even if all the States adopt products of the Initiative, the institutional frameworks in each State make it likely that there will be differences in the texts of each State's adoption. We are keeping Canada informed as to the progress of the U.S. Initiative.

Assessment and Remediation of Contaminated Sediments

The 1987 amendments to the Clean Water Act authorize the U.S. Environmental Protection Agency's Great Lakes National Program Office to coordinate and conduct a 5-year study and demonstration project relating to the control and removal of toxic pollutants in the Great Lakes, with emphasis on removal of toxic pollutants from bottom sediments. This effort has been named the Assessment and Remediation of Contaminated Sediments (ARCS) program. The Clean Water Act identified five areas to receive priority consideration in locating and conducting the demonstration projects: Saginaw Bay, Michigan; Sheboygan Harbor, Wisconsin; Grand Calumet River, Indiana; Ashtabula River, Ohio; and Buffalo River, New York.

A final report for the ARCS program will be available in December 1992. It will include guidance on how to conduct assessments of freshwater contaminated sediment problems,

guidance on remedial alternatives (including cost and possible environmental losses) and tools to assist decisionmakers in evaluating alternatives (i.e., models and risk assessment tools). This will be closely coordinated with the overall Agency sediment strategy development, and with existing programs, such as the Clean Water Act Section 404 dredging program.

It is important to note that Canada is represented on the ARCS Management Committee, and the U.S. is represented on Canada's Contaminated Sediment Committee.

Remedial Action Plans

The goal of Remedial Action Plans (RAPs) is to define the actions and the timetables to restore all impaired beneficial uses identified in the Areas of Concern ("toxic hot spots"). There are twenty-five Areas of Concern within the United States, and the United States and Canada share five others. There are grounds to believe that these local areas are themselves important sources of toxic pollution to open lake waters. Remedying these local areas will be vital to the health of the Lakes. We are currently taking under consideration the International Joint Commission's recent proposal to establish Erie Harbor, Pennsylvania as the forty-third area of concern under the Great Lakes Agreement.

Under the Agreement and consonant with delegated Federal responsibilities under the Clean Water Act, development of Remedial Action Plans is a State activity. There also is a strong Federal role in RAP activities. RAPs are submitted to EPA Regions for incorporation into State Water Quality Management Plans pursuant to Section 303 of the CWA and will become binding on the state through that mechanism. The Great Lakes National Program Office has a review and oversight role, coordinating between the three EPA Regions in the Great Lakes Basin. RAPs are submitted to the International Joint Commission for review and comment at three stages: when the definition of the problem has been completed; when remedial and regulatory measures have been selected; and when monitoring indicates that impaired beneficial uses have been restored.

In the past 12 months the States have submitted three stage one Remedial Action Plans. Two of the three submissions were from New York (Buffalo and Oswego Rivers); the third was from Wisconsin (Sheboygan Harbor). The Buffalo River RAP was also submitted for stage two review. All three RAPs now are undergoing Water Quality Board Review.

The settlement of the Outboard Marine Corporation/Waukegan Harbor Superfund action, through a Consent Decree and Record of Decision, has enabled GLNPO and Region V to negotiate an agreement with the Illinois Environmental Protection Agency on

the development of the RAP for the Waukegan Harbor Area of Concern (AOC). Under this agreement, Illinois will, by September 1990, adopt the Superfund settlement as a Stage II RAP for PCBs from the Outboard Marine Corporation source. They will also begin development of a Stage 1 RAP for other parameters. GLNPO will be providing limited financial support to Illinois for development of these products.

GLNPO now expects the States to complete 12 Stage I RAPs in the next 12 months. In addition, we expect two stage II RAPs to be submitted during that time. Three of the Stage I Binational RAPs (the Detroit, St. Marys, and St. Clair Rivers) are somewhat behind schedule because of delays by the Canadian partners.

By the end of calendar year 1991, all but two Stage I RAPs are expected to have been submitted to the IJC. It is important to note that while RAP development is proceeding, remedial actions have not been delayed and clean up is moving ahead under ongoing programs such as Superfund and NPDES. The schedule for Stage II submissions is much more uncertain, in that generally these are not scheduled for submission until the Stage I RAPs are completed.

Because the States have agreed that the completed RAPs will be certified as part of the State Water Quality Management Plans, they will be integrated into the State's annual water pollution

control program. This will help to ensure that RAP implementation is given appropriate priority in the utilization of scarce resources.

Lakewide Management Plans

The United States and Canada agreed on a policy framework for Lakewide Management Plans in October of 1989. GLNPO will be drafting further guidance in the form of Lakewide Management Plan Review Criteria which will be coordinated with the Regions, circulated to the states for comment, and discussed with Canada. The review criteria will be discussed at the next Parties meeting scheduled during June 1990. The target date for final Lakewide Management Plan Review Criteria is the end of June 1990.

The Great Lakes National Program Office is working with EPA Region II to develop the Lake Ontario Toxic Management Plan into a Lakewide Management Plan. At the same time, Region V has focused its attention on expanding the Lake Michigan Toxics Reduction Strategy.

The Agency, under a GLNPO lead, has developed a draft Great Lakes Basin Work Plan which delineates the activities required for implementing the Agreement and who is responsible for carrying them out. We intend to expand this effort next fiscal

year to incorporate other Federal and State Great Lakes activities, including Remedial Action Plan implementation and Lakewide Management Plan Development.

I hope you will agree that we are making substantial progress in the Great Lakes. We are constantly working to improve the already substantial international and intergovernmental coordination. We have reduced the level of pollutants flowing into the Great Lakes. Clearly, more needs to be done and more will be done. However, while we support the objective of H.R. 4323, the Administration cannot support the new state grant program or funding authorization levels proposed in the bill.

This concludes my prepared remarks. I would be pleased to respond to any questions you may have.

GLNPO
WORK IN SUPPORT OF

GREAT LAKES
SPILLS ENUMERATION

Chicago Tribune, Friday, April 20, 1990 Section 1 19

Great Lakes spills exceed 5,000

Coast Guard's revised count for '80s triples earlier figure

Knight-Ridder Newspapers

WASHINGTON—The Great Lakes absorbed more than 5,000 oil and chemical spills in the 1980s—nearly three times the total that had been previously reported—according to a U.S. Coast Guard study released Thursday.

Sen. Carl Levin (D-Mich.), who requested the study, said it proved that the world's single largest source of fresh water was "even more vulnerable than we realized" to spills.

"This information is startling, it's disturbing [and it is] something we should have had a long time ago," Levin said.

Levin said the revised figures prove the need for the establishment of an emergency spill response center in the Great Lakes, and he said he would work to get such a center added to the national oil spill legislation now pending.

Last fall, the Coast Guard told Levin it had records of only about 1,800 significant spills in the Great Lakes between January 1980 and September 1989.

Levin asked the Coast Guard to recheck its records and be sure it accounted for spills not just in open water but in all tributaries, harbors and connecting channels.

When it made that check, the Coast Guard found a total of 5,003 spills, Levin said Thursday.

He said about 80 percent of the spills were from land-based industries or facilities, and the rest were from vessels.

He said that 85 percent were oil spills, and 15 percent were chemical spills.

Levin said it was not immediately clear why spills were concentrated around certain cities. The areas with the highest number of spills were Detroit, with 623 spills; Toledo, Ohio, 479; Milwaukee, 308; and Cleveland, 293.

Other areas of spill concentration were the Niagara River, 260; Chicago, 234; Duluth, 174; Sault Ste. Marie, Mich., 89; and Grand Haven-Muskegon, Mich., 61.

Three of the worst spills Levin cited were in April 1984, when a New York storage facility spilled 1 million gallons of fuel oil; in July 1986, when a Sohio refinery near Lima, Ohio, spilled 260,000 gallons of crude oil; and in February 1989, when the BASF Co. spilled 171,000 gallons of chemicals near Sarnia, Ontario.

Levin, who introduced an anti-pollution bill called the Great Lakes Critical Programs Act last September, said he would take the new figures to the House-Senate conference committee currently working on a national spill bill and ask it to post an emergency spill response team in the Great Lakes.

In addition to establishing an oil-spill emergency response center, under Levin's bill the Coast Guard would have to maintain an up-to-date list of spill-fighting equipment available for use in the Great Lakes.

Elise Bean
Senate Oversight Committee
442 Hart
Senate Office Building
Washington D.C., 20510

DEC 29 1989

Dear Ms. Bean:

I am sending you materials to help in reporting of spills in the Great Lakes basin, as you have recently discussed with Mr. Pranas Pranckevicius of my staff.

Enclosed you will find an index map of the Great Lakes region with a three hundred thirty (330) cell grid superimposed on it. One hundred thirty of these grid cells completely enclose the United States portion of the Great Lakes basin. The identifying number of each grid cell is indicated in the center of each cell. An accompanying table which identifies the cell numbers and contains the latitude and longitude location of each corner of these cells is enclosed as well. I have enclosed a diskette containing ASCII and a WORDPERFECT 4.2 files of the grid system table.

I hope that this grid will assist the reporting of spills from the U.S. Coast Guard's (USCG) Pollutant Incident Reporting System (PIRS). Data retrievals from PIRS can be restricted to include only those spill events whose latitude and longitude locates them within the coordinates of the grid cells. Cross checking the spill events for each cell against the enclosed grid map allows visualization of the distribution of these events throughout the Great Lakes basin.

If there are further questions regarding these materials, please call me at (312) 353-2117.

Sincerely yours,

/s/ Original signed by
CAROL FINCH

Carol Finch, Director
Great Lakes National Program Office

Enclosures

bcc: D. Pascoe, USCG
B. Constantelos, 5H
M. Canavan, 5RA

61 76 91 106 121 136 151 166 181 196 211 226 241 256 271 286
62 77 92 107 122 137 152 167 182 197 212 227 242 257 272 287
63 78 93 108 123 138 153 168 183 198 213 228 243 258 273 288
64 79 94 109 124 139 154 169 184 199 214 229 244 259 274 289
65 80 95 110 125 140 155 170 185 200 215 230 245 260 275 290
111 126 141 156 171 186 201 216 231 246 261 276 291
112 127 142 157 172 187 202 217 232 247 262 277
128 143 158 173 188 203 218 233 248 263
129 144 159 174 189 204 219
130 145 160 175 190 205 220
176

HAZARDOUS WASTE MANAGEMENT

IN THE GREAT LAKES BASIN

(DRAFT)

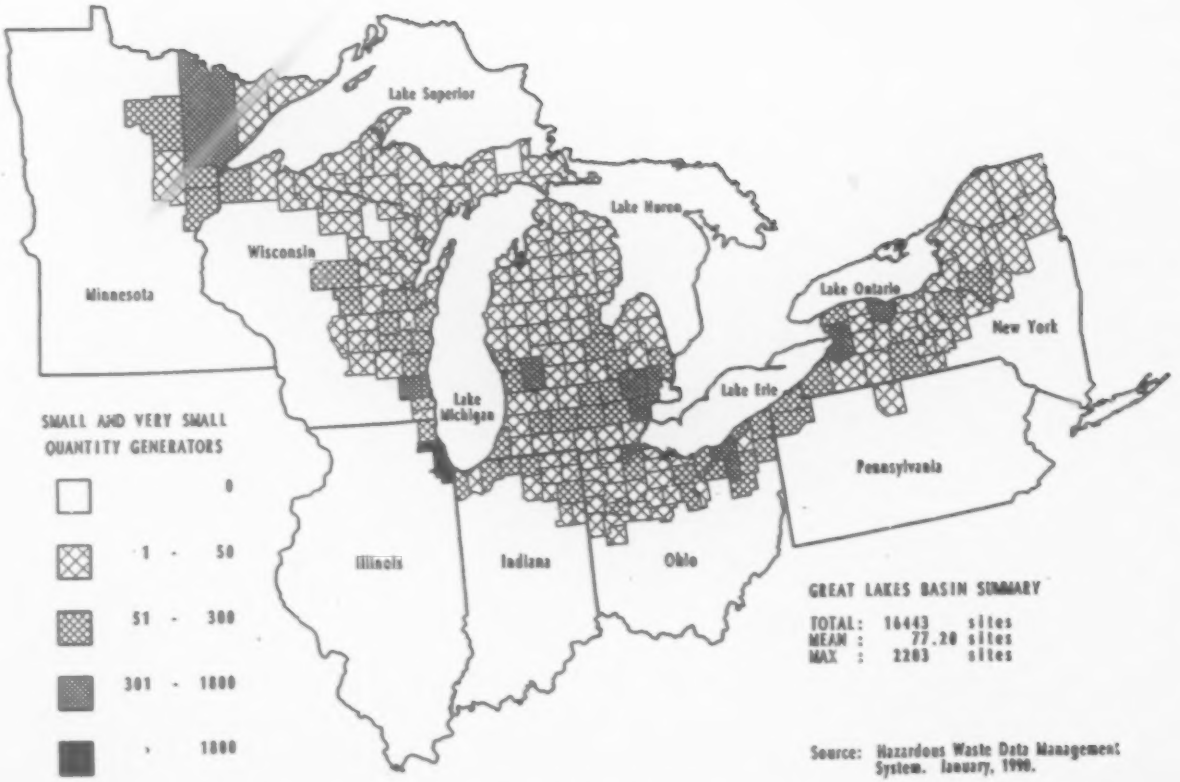
DRAFT

GREAT LAKES BASIN SUMMARY

TOTAL: 173 sites
MEAN : .81 sites
MAX : 11 sites

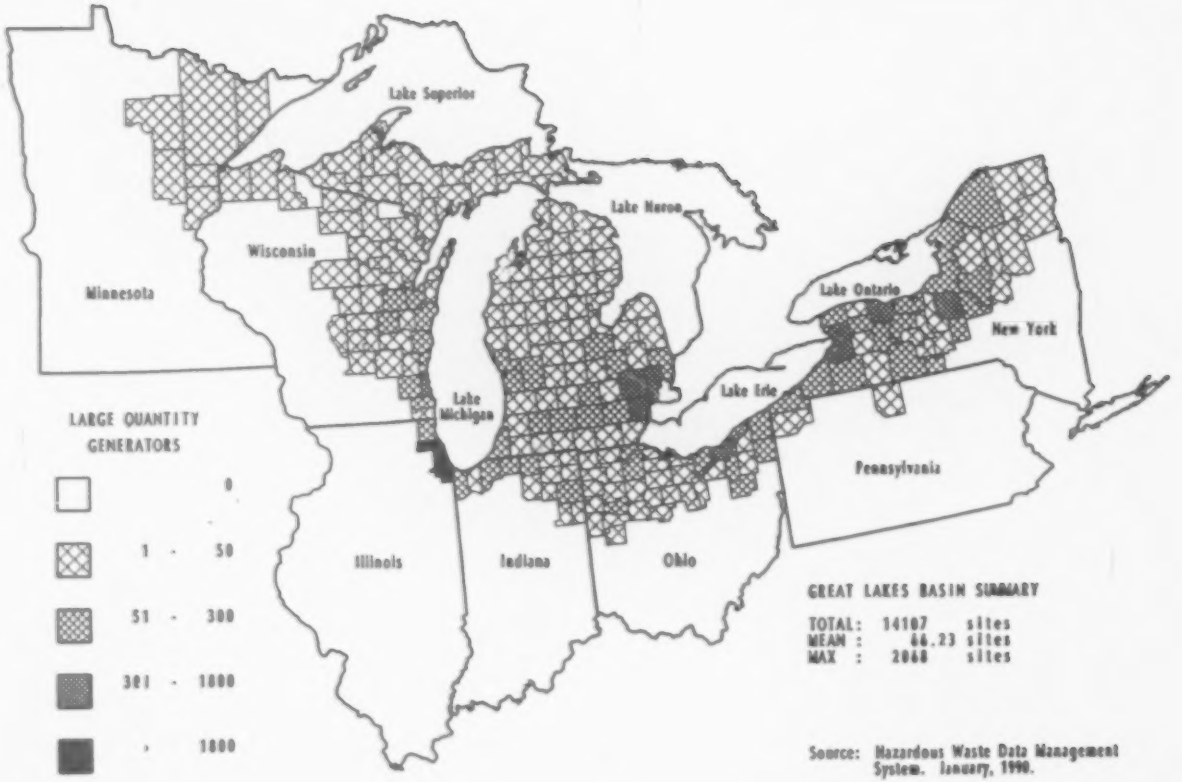
Source: Hazardous Waste Data Management System. January, 1990.

DRAFT



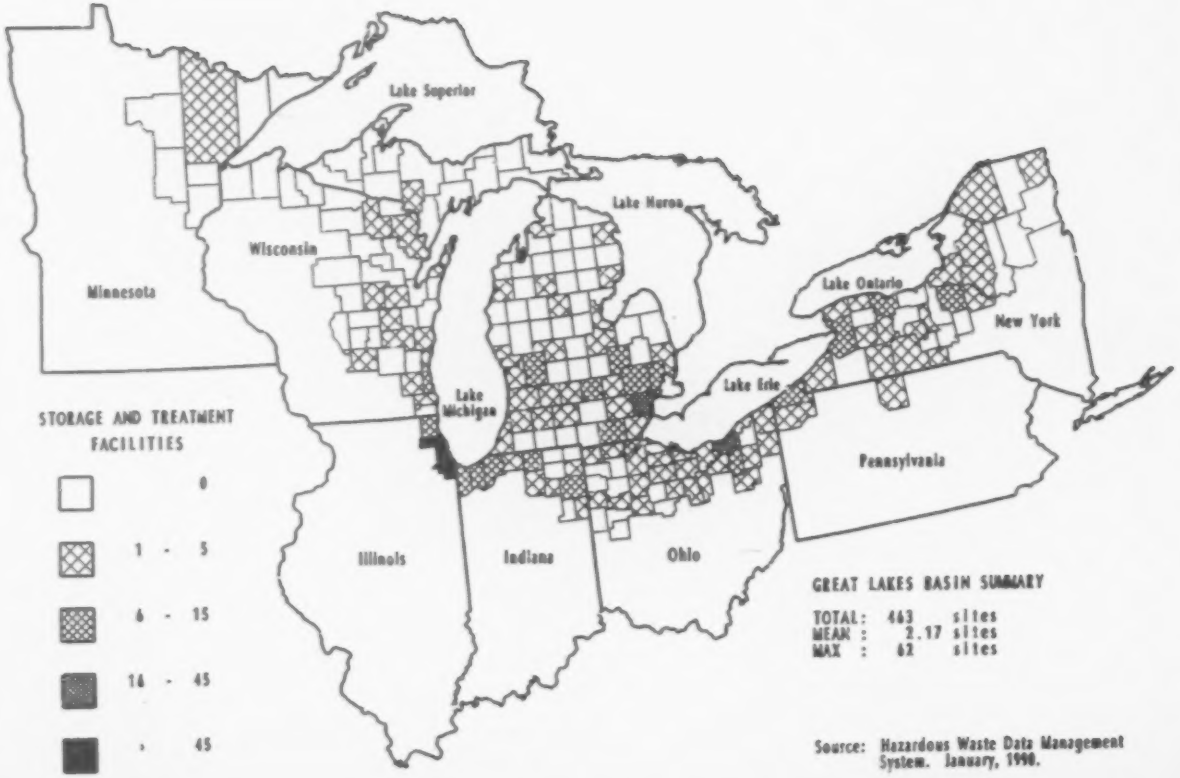
Source: Hazardous Waste Data Management System. January, 1990.

DRAFT



Source: Hazardous Waste Data Management System. January, 1990.

DRAFT


Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Erie
Lake Michigan
Pennsylvania
Illinois
Indiana
Ohio
STORAGE AND TREATMENT FACILITIES
0
1 - 5
6 - 15
14 - 45
› 45
GREAT LAKES BASIN SUMMARY
TOTAL: 463 sites
MEAN : 2.17 sites
MAX : 62 sites
Source: Hazardous Waste Data Management System. January, 1990.

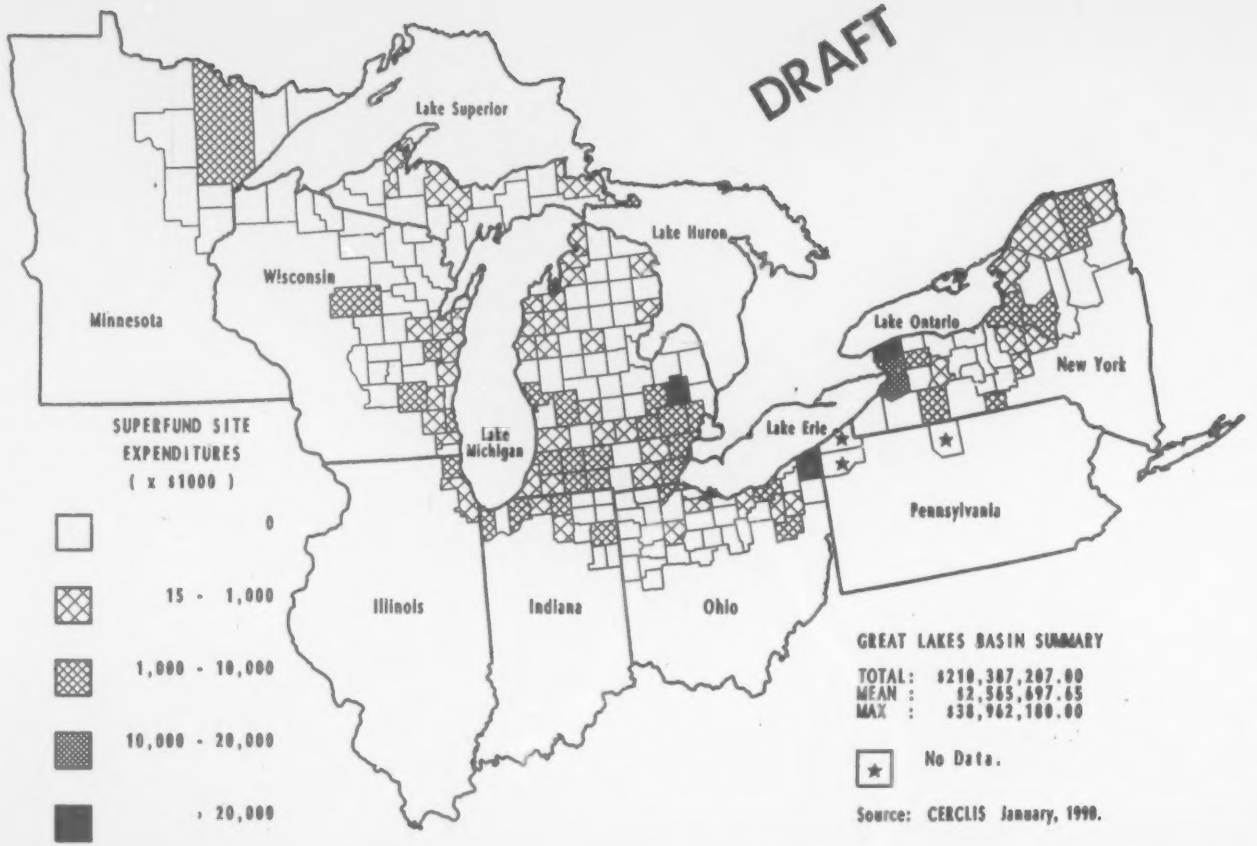
SUPERFUND PROGRAM ACTIVITY

IN THE GREAT LAKES BASIN

(DRAFT)

DRAFT
Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
FINAL AND PROPOSED
NPL SITES
0
1 - 2
3 - 4
5 - 6
> 7
GREAT LAKES BASIN SUMMARY
TOTAL: 163 sites
MEAN : 1.96 sites
MAX : 10 sites
Source: CERCLIS January, 1990.

DRAFT
Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
CERCLIS SITES
0
1 - 19
20 - 99
100 - 299
› 300
GREAT LAKES BASIN SUMMARY
TOTAL: 4109 sites
MEAN : 20.24 sites
MAX : 306 sites
Source: CERCLIS January, 1990.


DRAFT
Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
SUPERFUND SITE EXPENDITURES (x $1000)
0
15 - 1,000
1,000 - 10,000
10,000 - 20,000
> 20,000
GREAT LAKES BASIN SUMMARY
TOTAL: $210,387,207.00
MEAN : $2,565,697.65
MAX : $38,962,180.00
No Data.
Source: CERCLIS January, 1990.

U.S. AGRICULTURAL PRACTICES

IN THE GREAT LAKES BASIN

(DRAFT)

U.S. AGRICULTURAL TILLAGE PRACTICES IN THE GREAT LAKES BASIN, 1988

DRAFT

Agricultural runoff has long been recognized as a major source of nutrients as well as other agricultural chemicals to the Great Lakes. The International Joint Commission's Water Quality Board[1] reported in 1989 that monitored and unmonitored tributaries are the largest remaining sources of phosphorus loads to the Great Lakes. Whereas point sources of nutrients have been largely controlled through the building of waste treatment facilities and the NPDES permit program for regulation of dischargers to surface water, non-point sources of contamination remain an environmental problem. This problem can be solved, however, by implementation of Best Management Practices that preserve topsoil, increase yields, and reduce cropland runoff.

CONSERVATION TILLAGE PRACTICES

Tillage and planting practices which reduce soil erosion by wind or water are known collectively as conservation tillage. Conservation tillage practices which reduce soil erosion by water are defined as those which maintain a minimum of 30% of the soil surface covered with residue after planting. For areas subject to wind erosion, conservation tillage practices, by definition, reduce wind erosion during the critical erosion period by maintaining at least 1,000 pounds per acre of flat small-grain residue equivalent on the soil surface.

There are four main types of conservation tillage practices: No-Till, Mulch-Till, Ridge-Till, and Strip-Till. In addition, Reduced Till is defined as any other tillage and planting system not covered above that meets the residue requirement. These tillage practices differ in the level of soil disturbance and method of cultivation. The No-Till practice is recognized as providing maximum reduction of the amount of erosion. Other methods which do not attain the minimum of 30% residue on the soil surface, or 1,000 pounds residue per acre are known as conventional tillage practices. The tillage system selected by the farmer is dependent on both his circumstances (i.e. location, soil type, crop and other site-specific factors) and on his understanding of productive and prudent farming practices.

The Conservation Technology Information Center (CTIC) has compiled agricultural and tillage data for counties nationwide. CTIC, located in West Lafayette, Indiana, compiles agricultural and tillage data provided by the Soil Conservation Service on a county level nationwide. CTIC is part of the National Association of Conservation Districts. U.S. EPA's Great Lakes National Program Office has analyzed data

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1 Great Lakes Water Quality Board Report on Great Lakes Water Quality (1989)

from CTIC's Seventh National Survey of Conservation Tillage Practices for 1988 for counties of the Great Lakes basin[2] to show tillage trends in the Great Lakes area:

DRAFT

CROPLAND IN GREAT LAKES BASIN COUNTIES

Cropland accounts for 18,540,298 acres or 18% of the total area of the Great Lakes basin counties (101,733,263 acres) (Figure 1, Great Lakes Basin Acreage). The major cropland areas of the basin are located in northwest Ohio, the Saginaw River and Bay area, and west-central Wisconsin. Figure 5 (Percentage Cropland to Total County Area) shows the distribution of cropland in the Great Lakes Basin counties. Corn is the largest crop in the basin with a total of 7,784,348 acres (42%), followed by soybeans with 4,519,231 acres (24%) and small grains with 3,139,986 acres (17%) (Figure 2).[3] Figure 6, Figure 7, and Figure 8 show the distribution of corn, soybeans and small grains production in the Great Lakes basin counties. Major corn growing areas are located in east-central Michigan, south-east Michigan and northwest Ohio, and in central Wisconsin. Soybean growing is based in northtwestern Ohio and south of Saginaw Bay in Michigan. Small grains are grown largely east of Saginaw Bay in Michigan, and in south easten Wisconsin. Grain sorghum, other crops, pasture, forage crops, and fallow land account for the remaining 3,096,733 acres (17%) of cropland.[4]

GREAT LAKES TILLAGE PRACTICES

Conventional tillage practices are used far more than conservation tillage for all crops. Conservation tillage practices are used in 27% of the cropland. Mulch-Till is the most frequently used conservation tillage practice, accounting for 68% of all conservation tillage acres. No-Till is used in 24% of all conservation tillage acres. Ridge-Till and Strip-Till have only minor application in the Great Lakes basin (Figure 3). Comparison of Figures 5, 6, 7, and 8 (distributions of crop production) with Figures 9, 10, 11, and 12 (distribution of conservation tillage practices) shows graphically that Conservation Tillage practices are generally lowest in the areas of the greatest production for any particular crop.

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[2] Great Lakes counties were selected using ARC/INFO based upon 1:2,000,000 scale digital hydrography files (Table: Great Lakes counties). This list of counties includes counties not wholly within the Great Lakes Basin.

[3] Small grains includes crops such as wheat, oats, barley, rye, rice and others.

[4] Forage crops are grasses and/or legumes planted as part of crop rotation. Other crops are those not specifically listed as vegetable and truck crops, peanuts, tobacco, etc.

The corn crop is grown with a greater percentage of conservation tillage than any other crop. For example, conservation tillage is used for 38% of the total corn crop, but only 25% of the soybean crop and 20 percent of small grains (Figure 4). Conservation tillage practices account for less than 10% of all other crops grown.

Conservation tillage practices are most prevalent in corn production areas in northwest Indiana, central Wisconsin, and central Michigan (Figure 10). LaPorte and Porter counties in northwest Indiana have the two highest rates of conservation tillage use for corn production in the basin, 95.2% and 89%. On the other hand, the top eleven counties having the highest proportion of cropland to their acreage (79.7% - 68.2%) had very low rates of conservation tillage use. These counties, all in northwest Ohio, have rates of conservation tillage application ranging from 12.8% up to a high of 45.2% and averaging around 23.7%.

Kathy, work on this paragraph a bit. ..... These varying rates of conservation tillage are partly attributable to differences in soil types. Some soils with a high clay content cannot support conservation tillage practices, since the soil may become too hard to permit drainage, thereby drowning seed or denying sufficient moisture to near surface soil. During the early 1980's, USEPA-GLNPO helped to support demonstrations of conservation tillage in the Black Creek Indiana watershed, itself part of the Maumee River basin. One outcome of these studies was to show that high farm yields were obtainable in certain high clay soils, given sufficient drainage systems. Construction of such systems (e.g., parallel tile outlet terraces) is expensive and the drainage systems require the availability of outlet streams. Figure 2 does not adjust for soil types and thus does not indicate one likely reason for varying rates of conservation tillage. However, it is useful for displaying the absolute rates of conservation tillage adoption among counties.

IMPACT OF CONSERVATION TILLAGE PRACTICES UPON GREAT LAKES WATER QUALITY

The effectiveness of conservation-tillage practices upon nutrient and other agricultural chemical runoff is difficult to judge on a regional or lake-wide scale. However, recent research supported by U.S. EPA in the Lake Erie basin found no significant differences in runoff, tile flow, and pesticide losses between No-Till and fall plowing on test plots[5]. Corn-producing areas which may benefit from greater use of conservation tillage practices include northwest Ohio and east-central Michigan.

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5 Logan et al., 1989

From 1987 through 1989, USEPA-GLNPO helped to sponsor comprehensive visual surveys by the Soil and Conservation Service of conservation tillage in counties in Ohio, Indiana, and Michigan that drain to Saginaw Bay and Lake Erie. These have tended to essentially confirm traditional Soil and Conservation District "best professional judgment" estimates regarding "no till" prevalence, but indicate less adoption of other conservation tillage practices than previously estimated for these areas.

Comparison of overall crop production to conservation tillage practices use for the states of the Great Lakes basin show the following trends: .....

The states of ..., ..., ... need to play stronger roles in implementing ....

RECOMMENDATIONS

Several universities are pursuing development of remote, satellite monitoring of tillage practices that hold promise of obtaining more precise estimates in the future. However, differing estimation methods over time and around the Great Lakes basin tend to make district-by-district comparisons and historical trends somewhat problematic. Support appcication of remote sensing technologies to secure up to date information on crops, and tillage practices employed. This would help to

Continue to support CTIC, and continuosly monitor agricultural trends in the Great Lakes basin.

.....

DRAFT

Figure 1. GREAT LAKES BASIN ACREAGE

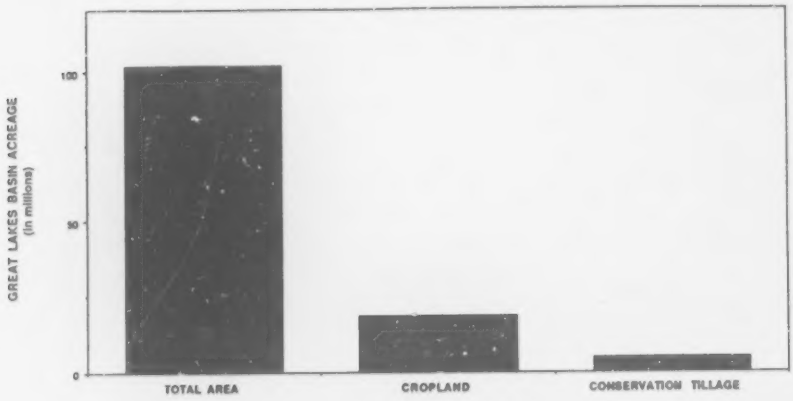
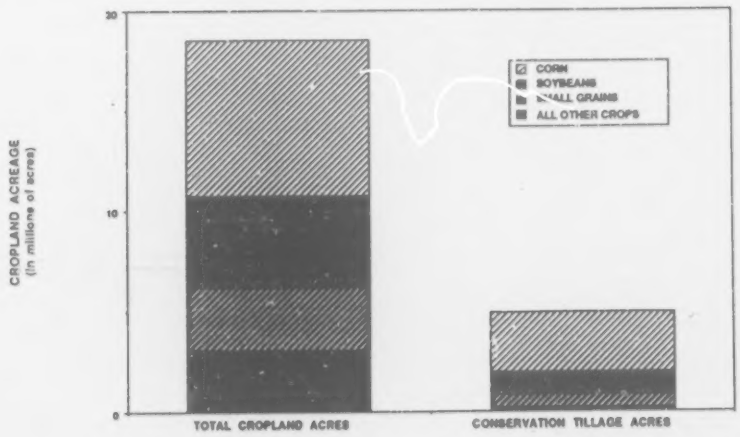


Figure 2. CROPLAND IN GREAT LAKES BASIN COUNTIES



DRAFT

Figure 3.

CONSERVATION TILLAGE PRACTICES
IN GREAT LAKES BASIN COUNTIES

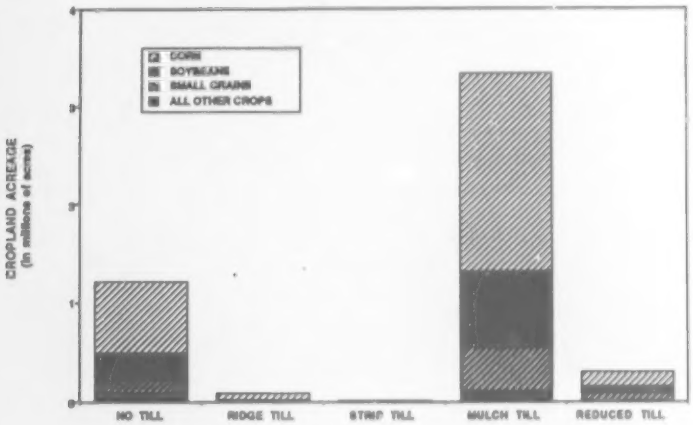
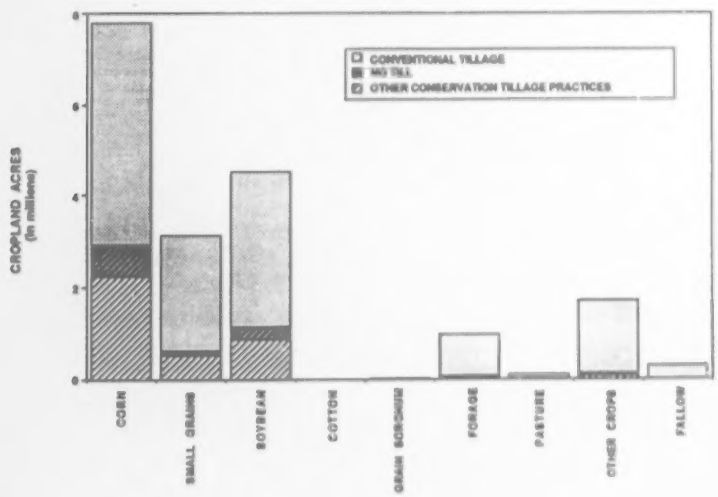


Figure 4.

TILLAGE PRACTICES IN GREAT LAKES BASIN COUNTIES
(by crop)



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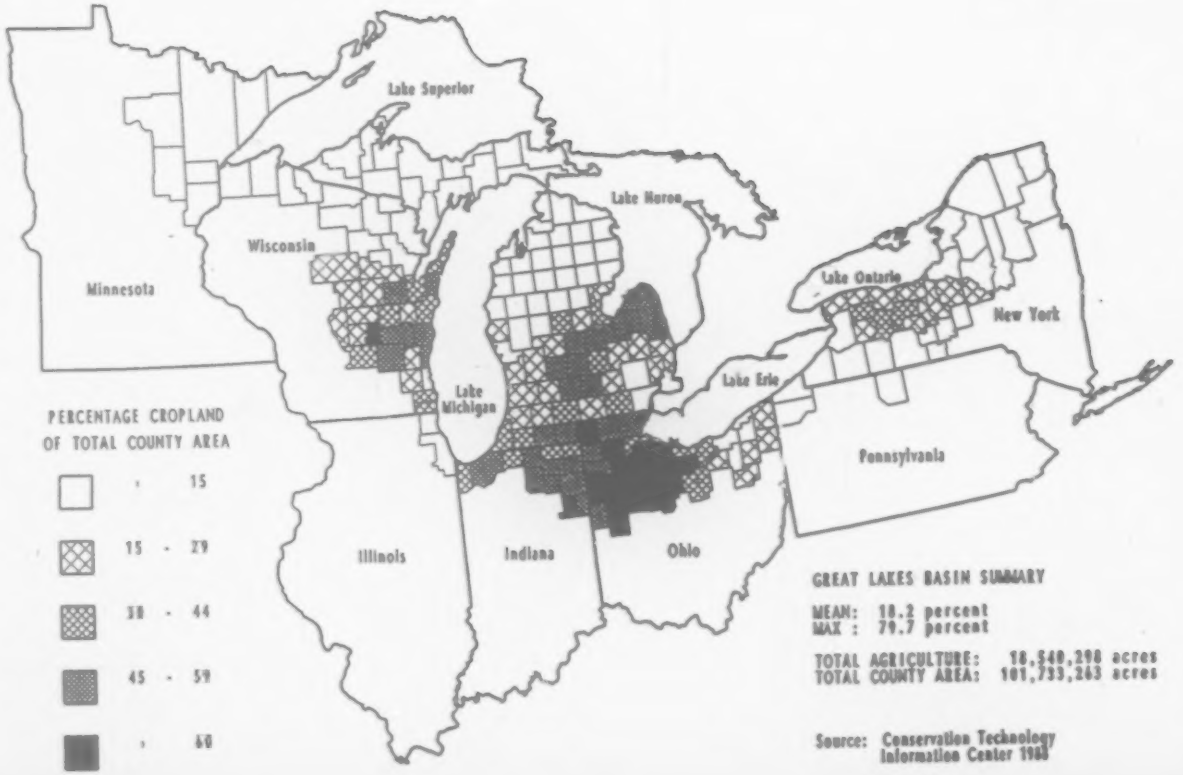
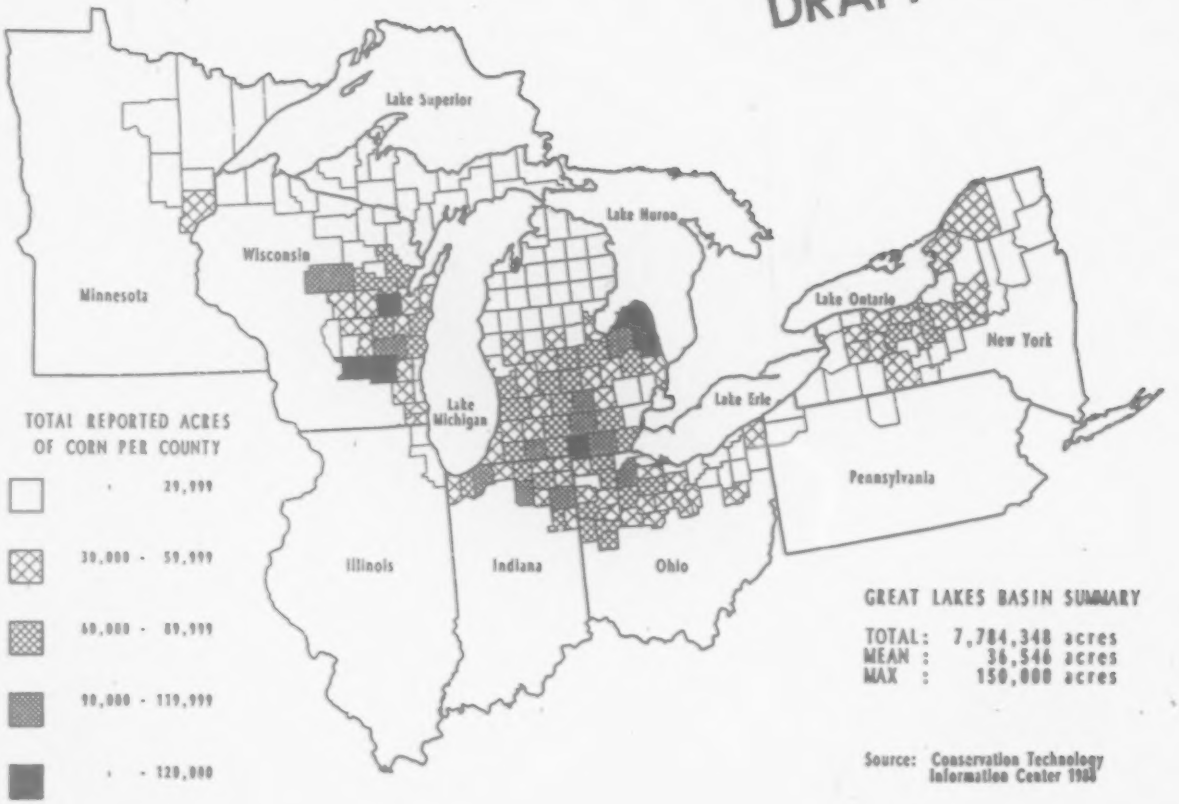

Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
PERCENTAGE CROPLAND
OF TOTAL COUNTY AREA
15
15 - 29
30 - 44
45 - 59
60
GREAT LAKES BASIN SUMMARY
MEAN: 18.2 percent
MAX : 79.7 percent
TOTAL AGRICULTURE: 18,540,298 acres
TOTAL COUNTY AREA: 101,733,263 acres
Source: Conservation Technology
Information Center 1981

DRAFT



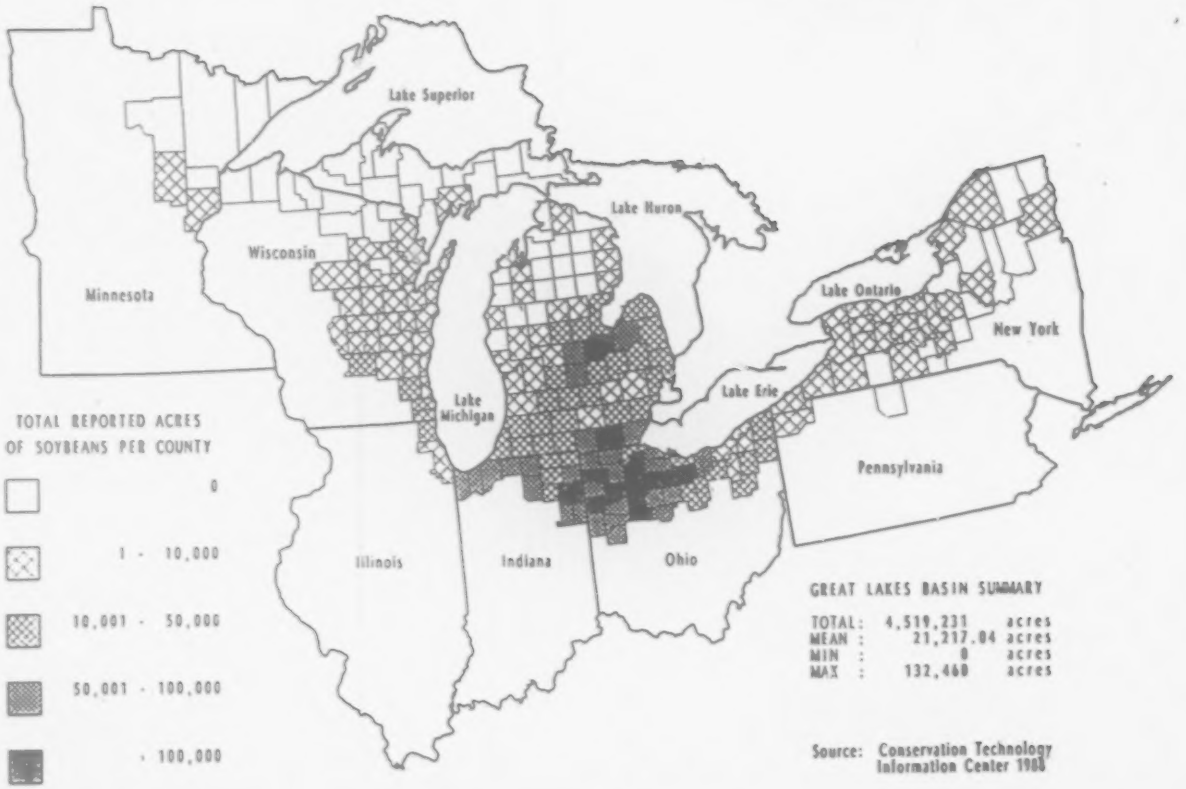
GREAT LAKES BASIN SUMMARY

TOTAL: 7,784,348 acres
MEAN : 36,546 acres
MAX : 150,000 acres

Source: Conservation Technology Information Center 1988

Fig. 11

DRAFT

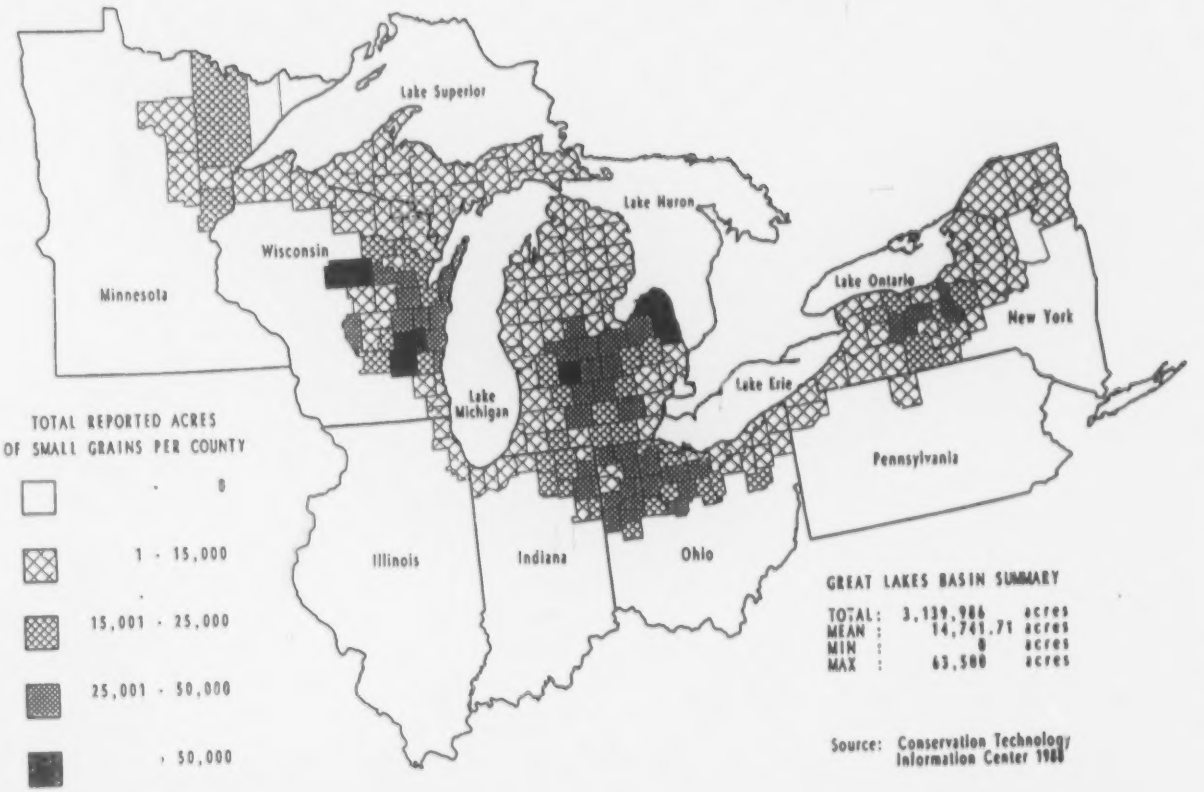


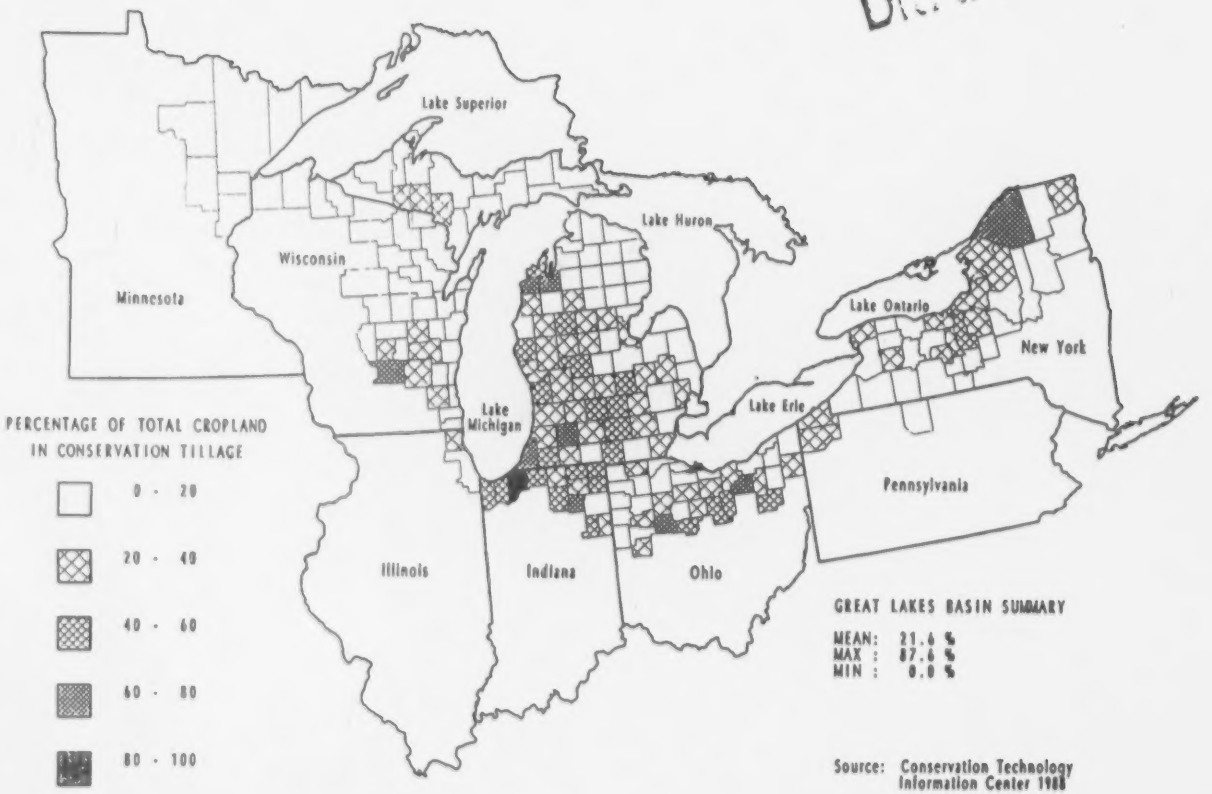
GREAT LAKES BASIN SUMMARY

TOTAL:	4,519,231	acres
MEAN :	21,217.04	acres
MIN :	0	acres
MAX :	132,460	acres

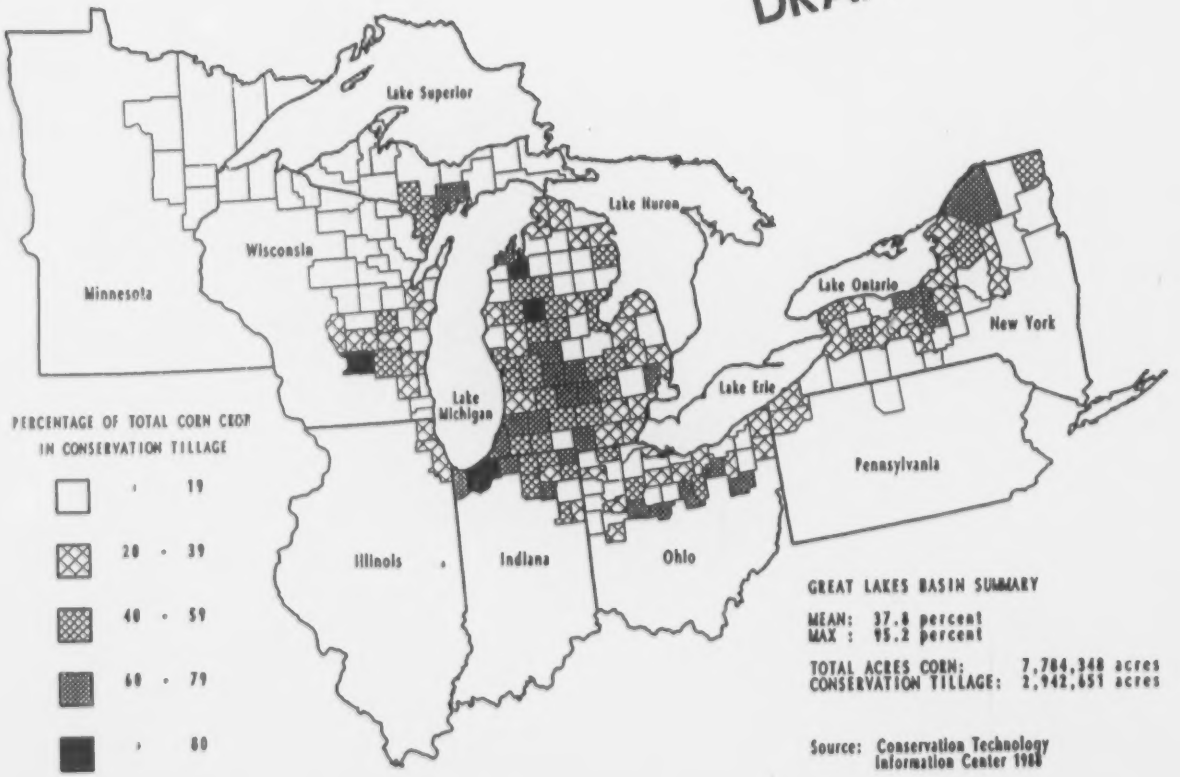
Source: Conservation Technology Information Center 1980

DRAFT


Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Erie
Lake Michigan
Pennsylvania
Illinois
Indiana
Ohio
TOTAL REPORTED ACRES
OF SMALL GRAINS PER COUNTY
0
1 - 15,000
15,001 - 25,000
25,001 - 50,000
> 50,000
GREAT LAKES BASIN SUMMARY
TOTAL: 3,139,986 acres
MEAN : 14,741.71 acres
MIN : 0 acres
MAX : 63,500 acres
Source: Conservation Technology Information Center 1980


Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
PERCENTAGE OF TOTAL CROPLAND IN CONSERVATION TILLAGE
0 - 20
20 - 40
40 - 60
60 - 80
80 - 100
GREAT LAKES BASIN SUMMARY
MEAN: 21.6 %
MAX : 87.6 %
MIN : 0.0 %
Source: Conservation Technology Information Center 1988

DRAFT



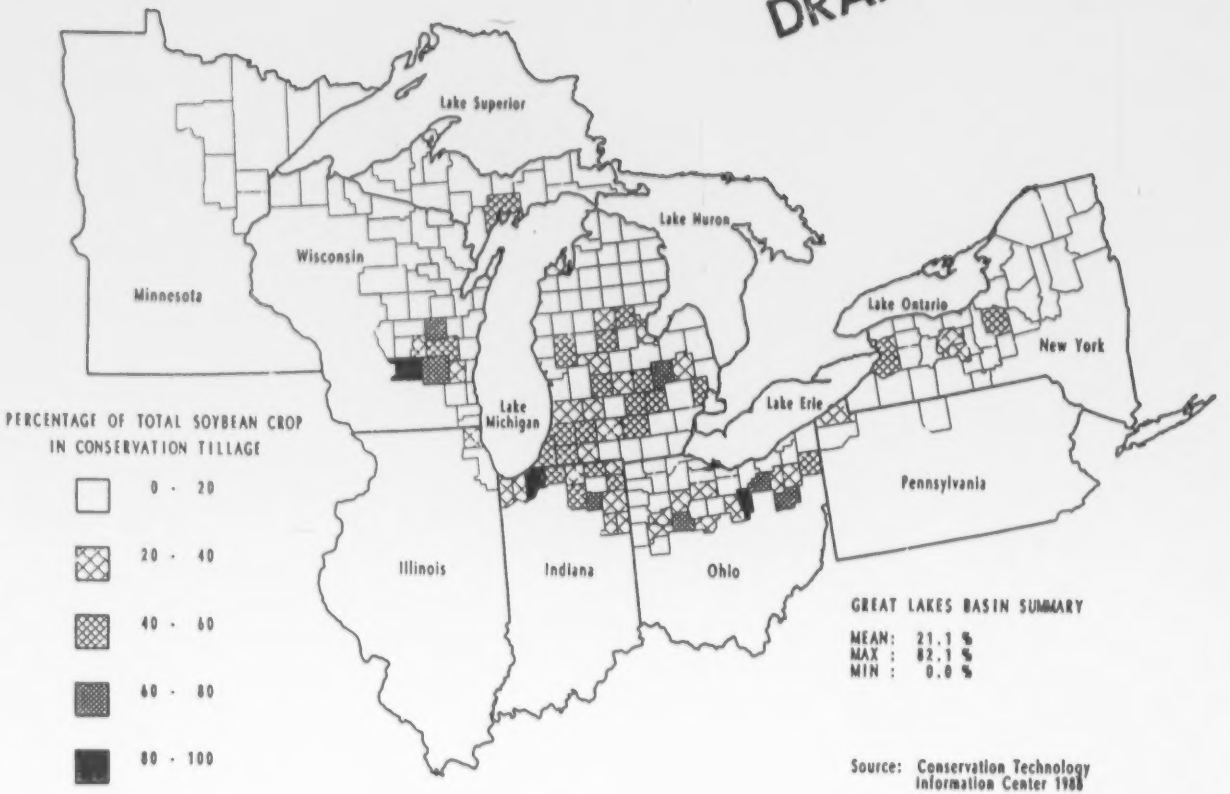
GREAT LAKES BASIN SUMMARY

MEAN: 37.8 percent
MAX : 95.2 percent

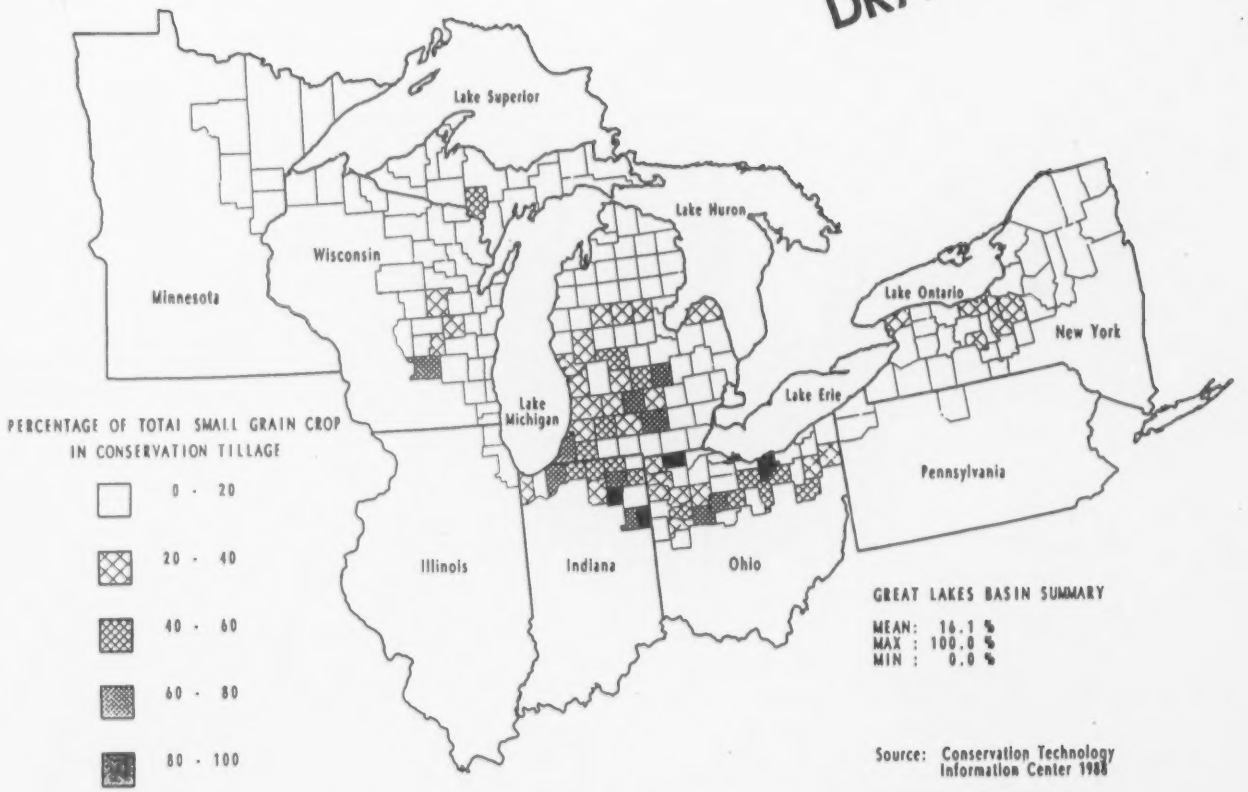
TOTAL ACRES CORN: 7,784,348 acres
CONSERVATION TILLAGE: 2,942,651 acres

Source: Conservation Technology Information Center 1988

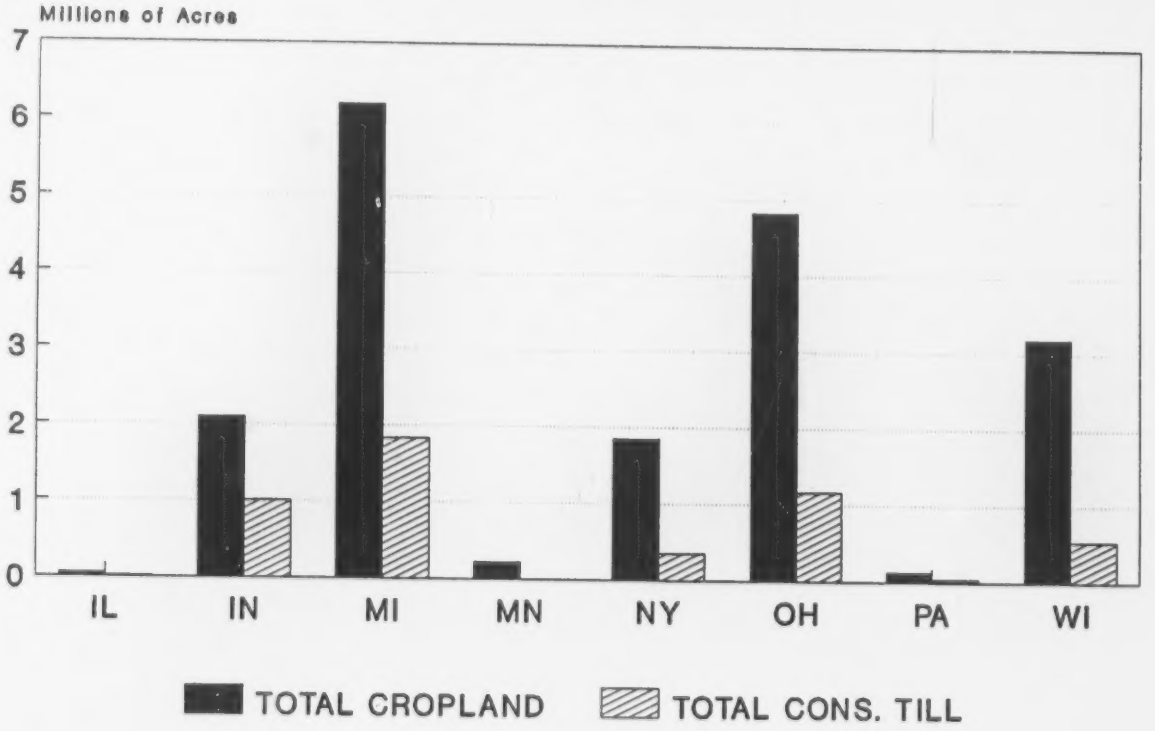
DRAFT


Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
PERCENTAGE OF TOTAL SOYBEAN CROP IN CONSERVATION TILLAGE
0 - 20
20 - 40
40 - 60
60 - 80
80 - 100
GREAT LAKES BASIN SUMMARY
MEAN: 21.1 %
MAX : 82.1 %
MIN : 0.0 %
Source: Conservation Technology Information Center 1985

DRAFT

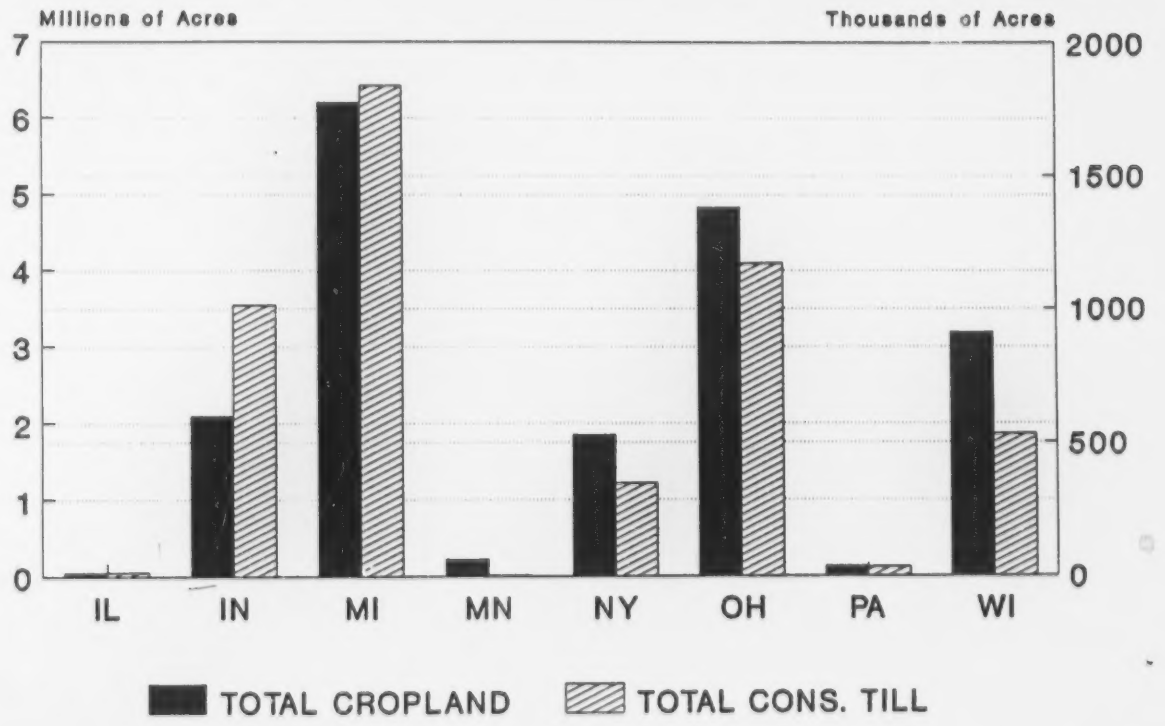

Lake Superior
Lake Huron
Wisconsin
Minnesota
Lake Ontario
New York
Lake Michigan
Lake Erie
Pennsylvania
Illinois
Indiana
Ohio
PERCENTAGE OF TOTAL SMALL GRAIN CROP IN CONSERVATION TILLAGE
0 - 20
20 - 40
40 - 60
60 - 80
80 - 100
GREAT LAKES BASIN SUMMARY
MEAN: 16.1 %
MAX : 100.0 %
MIN : 0.0 %
Source: Conservation Technology Information Center 1988

TOTAL CROPLAND VS CONSERVATION TILLAGE
(Great Lakes Basin Counties)



Data Source:
Conservation Technology Info. Center

TOTAL CROPLAND VS CONSERVATION TILLAGE
(Great Lakes Basin Counties)



Data Source:
Conservation Technology Info. Center

TESTIMONY OF R. DARRYL BANKS

DEPUTY COMMISSIONER

OFFICE OF ENVIRONMENTAL QUALITY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

BEFORE THE SUBCOMMITTEE ON

WATER RESOURCES OF THE

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

MAY 2, 1990

WASHINGTON, D.C.

GOOD MORNING. I AM DARRYL BANKS, DEPUTY COMMISSIONER FOR ENVIRONMENTAL QUALITY OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC). ON BEHALF OF COMMISSIONER THOMAS JORLING, I APPRECIATE THE OPPORTUNITY TO TESTIFY ON HR 4323 (THE GREAT LAKES WATER QUALITY IMPROVEMENT ACT OF 1990) AND ON OTHER MATTERS PERTINENT TO TODAY'S HEARING. I WANT TO THANK YOU, MR. CHAIRMAN, FOR THE LEADERSHIP INITIATIVES YOU HAVE UNDERTAKEN TO IMPROVE GREAT LAKES WATER QUALITY.

FIRST, LET ME DISCUSS THE FIFTH BIENNIAL REPORT OF THE INTERNATIONAL JOINT COMMISSION (IJC). WE GENERALLY AGREE WITH THE FIVE MAJOR RECOMMENDATIONS RECENTLY ISSUED BY THE IJC IN ITS FIFTH BIENNIAL REPORT.

ARTICLE I CALLS FOR ELIMINATING THE INFLOW OF PERSISTENT TOXIC SUBSTANCES INTO THE GREAT LAKES ENVIRONMENT. HOWEVER, AS THE SUBCOMMITTEE KNOWS, THE PROBLEM OF COMBINED SEWER OVERFLOWS CANNOT BE IMMEDIATELY ELIMINATED.

ARTICLE II PERTAINS TO IMPLEMENTATION OF THE AGREEMENT AND WE WOULD ONLY ADD THAT NEW YORK HAS AN ADEQUATE SYSTEM FOR DEVELOPING FISH CONSUMPTION ADVISORIES. WE DO HAVE A PROBLEM CONVINCING THE PUBLIC TO FOLLOW THE ADVISORIES, HOWEVER.

WE ARE COMMITTED TO DEVELOPING REMEDIAL ACTION PLANS (RAPS), AS CALLED FOR IN ARTICLE III, AND BELIEVE WE HAVE ESTABLISHED A REASONABLE TIMETABLE WHICH CALLS FOR EXTENSIVE PUBLIC PARTICIPATION.

ALSO, NEW YORK HAS AN AGGRESSIVE PROGRAM FOR PREVENTING AND CLEANING UP SPILLS OF TOXIC AND OTHER HAZARDOUS SUBSTANCES AND WE STRONGLY SUPPORT THE RECOMMENDATION IN ARTICLE IV REGARDING SPILL PREVENTION.

FINALLY, WE URGE THE FEDERAL GOVERNMENT, AS A PARTY TO THE GREAT LAKES WATER QUALITY AGREEMENT (AGREEMENT), TO CONSIDER AND ACT UPON THE RECOMMENDATION IN ARTICLE V WHICH CALLS FOR TIMELY AND INFORMATIVE RESPONSES TO THE COMMISSION'S RECOMMENDATIONS.

LET ME NOW TURN TO THE LEGISLATIVE ISSUES WHICH ARE THE SUBJECT OF TODAY'S HEARING.

HR 4323

THIS PROPOSED LEGISLATION RECOGNIZES THE NEED FOR THE FEDERAL GOVERNMENT TO STRONGLY SUPPORT THE PURPOSE AND OBJECTIVES OF THE AGREEMENT. IT EXECUTES ARTICLE 11 OF THE AGREEMENT WHICH REQUIRES "THE PARTIES [TO] COMMIT THEMSELVES TO SEEK THE ENACTMENT OF ANY ADDITIONAL LEGISLATION THAT MAY BE NECESSARY TO IMPLEMENT THE PROGRAMS AND OTHER MEASURES PROVIDED FOR ... IN THIS AGREEMENT."

THE INTERNATIONAL AND INTERSTATE NATURE OF THE GREAT LAKES BASIN REQUIRES FEDERAL LEADERSHIP TO HELP US OBTAIN CONSISTENCY IN WATER QUALITY PROGRAMS.

WATER QUALITY CRITERIA

SECTION 2 OF THE BILL REQUIRES EPA TO ADOPT SPECIFIC NUMERICAL WATER QUALITY CRITERIA AND GUIDANCE WITH RESPECT TO THE USE OF THOSE CRITERIA BY THE STATE AND LOCAL GOVERNMENTS. THIS IS A LOGICAL APPROACH TO ATTAIN THE OBJECTIVES OF THE AGREEMENT. ALL THE AFFECTED REGULATORY AGENCIES SHOULD USE THE SAME TOOLS TO UPGRADE WATER QUALITY, AND BASIN WATER QUALITY CRITERIA ARE VALUABLE TOOLS. THE RESPONSIBILITY FOR USING THE CRITERIA TO DEVELOP STANDARDS SHOULD, HOWEVER, BE RETAINED BY THE INDIVIDUAL STATES. IN ADDITION, THESE WATER QUALITY CRITERIA SHOULD NOT BE IMPLEMENTED BEFORE WE REACH AGREEMENT WITH THE CANADIAN GOVERNMENT REGARDING APPROPRIATE CRITERIA FOR THE GREAT LAKES.

THE BILL SHOULD BE AMENDED TO ADDRESS AN ISSUE RELATED TO THE DEVELOPMENT OF WATER QUALITY CRITERIA, i.e., FEDERAL GUIDANCE ON BASIN-WIDE POLICIES THAT CAN BE USED BY REGULATORY AGENCIES TO IMPLEMENT THEIR POLLUTION CONTROL PROGRAMS. FEDERAL LEADERSHIP IS NEEDED TO HELP US ELIMINATE THE DISCHARGE OF PERSISTENT TOXIC SUBSTANCES. MANY UNANSWERED QUESTIONS REMAIN WITH RESPECT TO ANALYTICAL DETECTION LEVELS, TREATMENT TECHNOLOGIES, RIPARIAN ISSUES AND OTHER TOPICS.

IN OTHER WORDS, EPA SHOULD BE ENCOURAGED TO QUICKLY DEVELOP AND CONTINUALLY UPDATE BEST AVAILABLE TREATMENT TECHNOLOGY (BAT) GUIDELINES AND CATEGORICAL PRETREATMENT GUIDELINES. THEIR DEVELOPMENT AND UPDATING HAS BEEN MUCH SLOWER THAN EXPECTED AND DEADLINES PREVIOUSLY SET BY CONGRESS HAVE NOT BEEN MET. FEDERAL IMPLEMENTATION OF THESE GUIDELINES WOULD HELP US ACHIEVE THE GOALS OF THE AGREEMENT. NO NEW STATUTORY AUTHORITY IS NEEDED - JUST A COMMITMENT BY EPA TO DO ITS JOB.

THE U.S. AND CANADIAN GOVERNMENTS MUST COMMIT TO ELIMINATING PERSISTENT TOXIC SUBSTANCES OR THE COOPERATIVE SPIRIT OF THE IJC WILL BE WASTED. THE IJC REITERATED THE NEED FOR THIS COMMITMENT IN THE FIFTH BIENNIAL REPORT ON GREAT LAKES WATER QUALITY. THE FIRST GENERAL RECOMMENDATION IN THAT REPORT REQUIRES THE PARTIES TO "TAKE EVERY AVAILABLE ACTION TO STOP THE INFLOW OF PERSISTENT TOXIC SUBSTANCES INTO THE GREAT LAKES ENVIRONMENT." THE BEST WAY TO DO THIS IS BY FORCING EPA TO DEVELOP THE BAT GUIDELINES.

GRANT PROGRAM

MY AGENCY STRONGLY SUPPORTS THE GRANT PROGRAM PROPOSED IN THE LEGISLATION FOR IMPLEMENTING THE GREAT LAKES WATER QUALITY AGREEMENT. PROGRESS IN REMEDIATING WATER QUALITY PROBLEMS REQUIRES A SUBSTANTIAL COMMITMENT OF RESOURCES. HOWEVER, THE PROPOSED AUTHORIZATION SHOULD BE INCREASED, AND THE FEDERAL COST SHARE SHOULD BE INCREASED FROM 50% TO 75%. THIS LEVEL OF FUNDING

WOULD MAKE THE U.S. FINANCIAL COMMITMENT CONSISTENT WITH THE FUNDING FOR OTHER NATIONAL WATER QUALITY INITIATIVES, SUCH AS THE NATIONAL ESTUARY PROGRAM. BY SIGNING THE AGREEMENT, THE FEDERAL GOVERNMENT COMMITTED ITSELF TO IMPROVING WATER QUALITY IN THE GREAT LAKES. IT HAS THE RESPONSIBILITY FOR IMPLEMENTING THE AGREEMENT. THE PROPOSED FUNDING LEVEL OF $30 MILLION ANNUALLY FOR FFY 1992-1997 WOULD MAKE ONLY $1.25 MILLION AVAILABLE PER YEAR TO EACH STATE FOR COMPLYING WITH THE AGREEMENT. CONSIDERING THE HIGH COSTS OF REMEDIAL MEASURES AT AREAS OF CONCERNS, AND THE FACT THAT THERE ARE 26 OF THOSE AREAS OF CONCERN IN THE GREAT LAKES STATES, THE PROPOSED FUNDING LEVEL MAY NOT BE SUFFICIENT TO ATTAIN THE BILL'S STATED PURPOSE. THERE IS ALSO A NEED TO ASSURE THAT THE MONIES AUTHORIZED ARE IN FACT APPROPRIATED. THESE ARE DIFFICULT TIMES FOR YOU, AND I KNOW EQUITABLE DISTRIBUTION OF FEDERAL RESOURCES IS A REAL CONCERN, BUT, THE AMERICAN PEOPLE ARE WILLING TO PAY FOR A HEALTHY ENVIRONMENT, PARTICULARLY ONE THAT SERVES AS A CATALYST TO ECONOMIC AND RECREATIONAL DEVELOPMENT.

REMEDIAL ACTION PLANS

THE PROPOSED LEGISLATION INCLUDES A REQUIREMENT THAT RAPS BE APPROVED BY THE IJC. THIS WOULD GIVE OVERSIGHT POWERS TO A COMMISSION WHICH IS NOT ACCOUNTABLE TO THE U.S. PRESIDENT OR TO THE CONGRESS. IT IS OUR OPINION THAT EPA AND NOT THE IJC SHOULD APPROVE THE RAPS.

THE LEGISLATION ALSO INCLUDES A TIMETABLE FOR SUBMITTING RAPS TO THE IJC. ALL THE GREAT LAKES STATES HAVE BEGUN AND ARE COMMITTED TO MOVING AS QUICKLY AS POSSIBLY TO DEVELOP RAPS. THERE IS A NEED FOR FLEXIBILITY IN DEVELOPING THESE PLANS WHICH THE RIGID TIMETABLE PROPOSED IN THE LEGISLATION DOES NOT ACKNOWLEDGE. INCLUDING TIMETABLES WHICH CANNOT REALILSTICALLY BE MET WILL ERODE PUBLIC CONFIDENCE IN GOVERNMENTS COMMITMENT TO GREAT LAKES CLEANUP.

FOR EXAMPLE, IN NEW YORK STATE ATTAINING THE DEADLINE FOR COMPLETION OF THE PLANS MAY BE FRUSTRATED BY LIMITED STATE RESOURCES AND OUR DESIRE AND LEGAL REQUIREMENTS FOR PUBLIC PARTICIPATION. TO ILLUSTRATE THIS POINT, UNDER THE CURRENT TIMETABLE, THE RAP FOR EIGHTEEN MILE CREEK WOULD NOT BE COMPLETED IN TIME TO MEET THE SCHEDULE PROPOSED IN THE BILL. WE ARE CURRENTLY IMPLEMENTING THE RECOMMENDATIONS CONTAINED IN THE BUFFALO RIVER RAP. WE HAVE JUST BEGUN DEVELOPING THE NIAGARA RIVER RAP. MANY OF THE SAME STAFF INVOLVED IN BOTH THE BUFFALO AND NIAGARA RIVER RAPS WILL BE INVOLVED IN THE RAP FOR THE EIGHTEEN MILE CREEK AREA OF CONCERN.

IN CONCLUSION, WE STRONGLY SUPPORT H.R. 4323 BUT WOULD RESPECTFULLY REQUEST THE SUBCOMMITTEE TO CAREFULLY REVIEW OUR SUGGESTED CHANGES.

LET ME NOW OFFER A FEW BRIEF COMMENTS ON OTHER BILLS INTRODUCED BY THE CHAIRMAN WHICH AFFECT THE GREAT LAKES.

HR 4214

THE RAPID PROLIFERATION OF THE ZEBRA MUSSEL ACROSS LAKE ERIE IN 1988 AND 1989 HAS SERVED NOTICE THAT GOVERNMENTS CAN NO LONGER AFFORD TO IGNORE THE ECONOMIC AND ECOLOGICAL CONSEQUENCES OF THE INADVERTENT INTRODUCTION OF NON-NATIVE ORGANISMS INTO NORTH AMERICAN ECOSYSTEMS. THE ISSUE OF BALLAST WATER TRANSPORT OF SUCH ORGANISMS IS, IN PARTICULAR, LONG OVERDUE FOR REDRESS.

WE ARE PLEASED TO NOTE THAT H.R. 4214 (NONINDIGENOUS AQUATIC NUISANCE ACT OF 1990) SEEKS TO IMPLEMENT A BALLAST WATER MANAGEMENT PROGRAM TO ADDRESS WHAT IS PROBABLY THE MOST SIGNIFICANT MODE OF INTRODUCTION OF NON-NATIVE ORGANISMS INTO U.S. AQUATIC ECOSYSTEMS.

THE INVASION OF THE GREAT LAKES BY ZEBRA MUSSELS HAS ALSO ILLUSTRATED THAT THERE IS NO EFFECTIVE INSTITUTIONAL FRAMEWORK FOR DEALING WITH SUCH AN ISSUE ON A REGIONAL BASIS. TITLE II OF H.R. 4214 SEEKS TO CORRECT THIS DEFICIENCY BY ESTABLISHING A PROTOCOL TO RESPOND TO INTRODUCTION OF THE ZEBRA MUSSEL, AND OTHER NON-NATIVE ORGANISMS THAT CAUSE PROBLEMS, BY ESTABLISHING REGIONAL COMMISSIONS THAT WILL COORDINATE NEEDED RESEARCH AND MANAGEMENT ACTIVITIES.

OUR ONLY CONCERN WITH TITLE II IS THE GEOGRAPHIC RESTRICTIONS ON RESEARCH FUNDING IDENTIFIED IN SECTION 203. THIS RESTRICTION IS PRESUMABLY INTENDED TO PREVENT THE SPREAD OF NON-NATIVE ORGANISMS THROUGH RESEARCH ACTIVITIES. THIS COULD, HOWEVER, PREVENT PARTICIPATION BY HIGHLY QUALIFIED INSTITUTIONS AND SCIENTISTS. LIVE SPECIMENS MAY NOT BE NECESSARILY REQUIRED TO PERFORM SOME TYPES OF VALUABLE RESEARCH. IT IS ALSO LIKELY THAT PROTOCOLS COULD BE DEVELOPED FOR HANDLING LIVE SPECIMENS THAT WOULD SAFEGUARD AGAINST ACCIDENTAL RELEASES FROM LABORATORIES. WE SUGGEST THAT THE PROVISIONS OF SECTION 203 BE AMENDED TO ALLOW BROADER PARTICIPATION BY QUALIFIED RESEARCH INSTITUTIONS AND SCIENTISTS.

NEW YORK IS PLEASED TO SUPPORT H.R. 421 AND LOOKS FORWARD TO PARTICIPATING IN THE ACTIVITIES OF THE PROPOSED GREAT LAKES REGIONAL COMMISSION.

H.R. 4299

GREAT LAKES WATERS UNDER NEW YORK JURISDICTION ACCOUNT FOR TWO-THIRDS OF THE FRESHWATER SURFACE AREA IN THE STATE. THE GREAT LAKES ARE AN INTEGRAL PART OF THE CULTURAL AND ECOLOGICAL HERITAGE OF NEW YORK.

DESPITE SUBSTANTIAL PROGRESS IN RESTORING GREAT LAKES FISHERIES, SIGNIFICANT NEEDS EXIST FOR FISHERY MANAGEMENT PROGRAMS. AS FISHERY MANAGEMENT BECOMES MORE "ECOSYSTEM

ORIENTED," THE KNOWLEDGE BASE NECESSARY TO MAKE CORRECT DECISIONS EXPANDS COMMENSURATELY. ASSESSMENT ACTIVITIES MUST INCREASINGLY BE LAKEWIDE, OR EVEN BASINWIDE, IN SCOPE, WITH LESS EMPHASIS ON RESPECTING POLITICAL BOUNDARIES. THE GROWING REGIONAL NATURE OF GREAT LAKES FISHERY PROGRAMS INDICATES THAT AN EXPANDED FEDERAL ROLE IS LOGICAL, APPROPRIATE AND NECESSARY.

THE PARTNERSHIP BETWEEN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND THE U.S. FISH AND WILDLIFE SERVICE HAS BEEN SUCCESSFUL BECAUSE EACH AGENCY UNDERSTANDS THE UNIQUE RESPONSIBILITIES AND PREROGATIVES OF THE OTHER. THIS DISTINCTION IS NOT CLEARLY CONVEYED IN THE WORDING OF H.R. 4299 (GREAT LAKES FISH AND WILDLIFE RESTORATION ACT OF 1990). IT WOULD BE HELPFUL IF THE BILL CLEARLY DELINEATED THE AUTHORITY AND RESPONSIBILITY OF THE STATE NATURAL RESOURCE AGENCIES FOR THE MANAGEMENT OF GREAT LAKES FISH AND WILDLIFE RESOURCES.

NEW YORK WELCOMES THE OPPORTUNITY TO COLLABORATE MORE CLOSELY AND EXTENSIVELY WITH THE U.S. FISH AND WILDLIFE SERVICE FOR THE BETTERMENT OF GREAT LAKES FISH AND WILDLIFE RESOURCES AND SUPPORTS H.R. 4299.

World Wildlife Fund
The Conservation Foundation

STATEMENT OF THEO COLBORN, PH.D

SENIOR FELLOW

WORLD WILDLIFE FUND AND THE CONSERVATION FOUNDATION

Before the

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

SUBCOMMITTEE ON WATER RESOURCES

U.S. HOUSE OF REPRESENTATIVES

May 2, 1990

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World Wildlife Fund is the leading private conservation organization working worldwide for the conservation of nature. WWF is active in shaping conservation policies in the United States and in the international arena, and in promoting conservation in the field -- supporting individuals and institutions in more than 100 countries. Founded in 1961, WWF now has over 800,000 members in the United States. Altogether, the WWF family of 27 national organizations has 4 million supporters around the world.

The Conservation Foundation is committed to improving the quality of the environment and to securing wise use of the earth's resources by influencing public policy. Through the work of an interdisciplinary staff, the Foundation seeks to promote conservation by undertaking rigorous analyses of environmental problems to improve public understanding, and by convening representatives of diverse interests to build consensus on controversial environmental policy issues. Since its founding in 1948, The Conservation Foundation has been an advocate characterized by reason and balance. Current Foundation activities afford high priority to wetlands conservation, pollution and toxic substances worldwide, public and private land use in the United States, and economic development in the Third World.

World Wildlife Fund and The Conservation Foundation affiliated in 1985.

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COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

SUBCOMMITTEE ON WATER RESOURCES

U.S. HOUSE OF REPRESENTATIVES

ON GREAT LAKES WATER QUALITY AND H.R. 4323

May 2, 1990

Mr. Chairman and members of the Subcommittee:

I am Theo Colborn, Senior Fellow, with the World Wildlife Fund and The Conservation Foundation, affiliated nonprofit organizations which represent 800,000 members and 40 years experience in environmental policy research, communications, and field work.

I want to thank the Subcommittee for the opportunity to speak today and provide our views on Great Lakes water quality issues in general and on H.R. 4323, the "Great Lakes Water Quality Improvement Act of 1990", in particular.

INTRODUCTION

Much of what I say today draws on a comprehensive study of

the environmental status of the Great Lakes. This work resulted in a book, "Great Lakes, Great Legacy?", a 2 1/2-year binational effort by The Conservation Foundation in collaboration with Canada's Institute for Research on Public Policy. In the book we show that the Great Lakes ecosystem is still stressed from toxic chemicals despite a number of remarkable improvements in recent years. We make extensive policy recommendations, several of which are pertinent to today's hearing. We call for the use of animals dependent upon aquatic food sources as sentinels of hazard to human health when setting standards. We also call for the inclusion of developmental effects when assessing the risk from exposure to the persistent toxic chemicals in the Great Lakes ecosystem. For further reference, I have included with this testimony a summary of the book and a description of our policy recommendations.

PROBLEMS IN THE GREAT LAKES ECOSYSTEM: A RESOURCE AT RISK

The Great Lakes are one of the United States's most valuable natural resources, holding 20% of the world's supply of fresh surface water. They have been a vital avenue of national and international shipping, a source of drinking water for 23 million people, a valued fishery for generations, and an important recreational and aesthetic resource. In some respects, the ecosystem may be healthier now than when Lake Erie was reported dying and the Cuyahoga River burned 20 years ago, but serious environmental problems remain.

Our research found that trends in water quality and sediments in the Great Lakes basin offer a mixed picture of program successes, unacceptably high levels of continued contamination, and uncertainty about the conditions. Reduced levels of particular toxic substances in sediments and organisms reflect the success of restrictions or bans on chemical use and production, although levels of such contaminants as mirex, PCB, and dieldrin remain unacceptably high in sediments and animal tissue in the basin. These persistent chemicals are not water soluble and are seldom detected in ambient water samples because they are present in such low concentrations. However, they are at concentrations high enough to bioaccumulate in food resources and pose serious problems. It is this problem we shall address today.

EFFECTS OF TOXICS ON WILDLIFE AND HUMANS

Our research revealed that for the past 40 years, since the chemical revolution following World War II, at least 14 top predator species have shown occasional severe reproductive problems and population declines. All of these species are dependent upon Great Lakes fish for their food source. Following major declines in contaminants entering the basin in the 1970s, many wildlife populations showed marked improvements in numbers. Much of the improvement was the result of reductions in DDT exposure that led to thicker egg shells and improved

reproductivity in the more visible bird species. However, it is now realized that DDT effects only masked other more subtle health effects wildlife populations were experiencing. Today, except for the ring-billed gull, researchers are still reporting problems in populations of every one of the species among the list of 14. It is clear that wildlife health problems have not been resolved in the Great Lakes basin, and that toxic chemicals are at the heart of the problem.

To date, Great Lakes wildlife researchers have shown that contaminants are transferred from the mother to the offspring in eight wildlife species. They have also discovered a suite of adverse health effects in the offspring that are quite similar. Cancer has only been reported in bottom dwelling fish species, and in a population of Beluga whales, which live at the mouth of the St. Lawrence River. However, long before cancer develops, this suite of health problems may occur that affects the viability of the fetus and the longevity, behavior, reproductive capability, and quality of life of the offspring.

It is important to note that a series of reports on the health of children born of women with a history of eating Lake Michigan fish suggests that maternal transfer of toxic chemicals may be affecting the well-being of their children, similar to the pattern of exposure in wildlife offspring. The cognitive, motor, and behavioral development of offspring from women who had a

history of eating Lake Michigan fish was dependent upon the mother's lifetime history of eating fish, not just what she ate during pregnancy. The women were not consuming large amounts of fish -- two fish meals or fewer a month for a period of six years preceding their pregnancies.

Great Lakes wildlife researchers have taken tissue from diseased animals in the basin and measured physiological changes at the cell level and found that those animals suffering the most also held the highest concentrations of a number of PCBs and dioxins -- specifically, several of their most toxic components. In laboratory experiments these same physiological changes at the cell level correlate with the dose of certain toxic components of PCBs, dioxins, and furans. Going one step further, the amount of the physiological response at the cell level has been correlated with the magnitude of a number of toxic responses in a number of laboratory animals. <u>These toxic responses from components of PCB, dioxins, and furans include the same suite of adverse health effects reported in Great Lakes wildlife.</u>

<u>H.R. 4323</u>

World Wildlife Fund and The Conservation Foundation believe that the weight of evidence from the research just described can no longer be ignored. It is time to act. H.R. 4323 represents a strong first step to meet the challenges of Great Lakes protection in the 1990s. It incorporates provisions of the

Great Lakes Water Quality Agreement into domestic law and provides federal matching funds for remedial action plans. It establishes deadlines by which programs authorized in the Great Lakes Water Quality Agreement are to be carried out. It also makes these commitments possible by increasing the authorized level of spending on Great Lakes Programs.

We are concerned, however, that H.R. 4323 does not directly address the problem of food resources in the basin. There are two fundamental problems that must be addressed to solve this problem. First, the problem of biomagnification must be dealt with through ecosystem standards rather than water quality standards, and second, the current methods to establish standards to protect human health need to be updated.

1. Ecosystem Objectives

In order to protect the wildlife and humans who consume Great Lakes food resources, it is now time to empower those who set water quality standards with the capability of also establishing ecosystem standards. Ecosystem standards or objectives could be based on either one or a combination of the following: (1) a stable reproducing population of a designated species; (2) minimum rates of reproduction of a number of species at various levels in the food web; and (3) maximum allowable concentrations of chemicals in wildlife tissue. H.R. 4323, in calling for "...specific numeric water quality criteria to protect human

health.." and wildlife in the basin does not go far enough. We ask you to take H.R. 4323 one step further and open the door for the use of wildlife indicators as a measure of water integrity. Amend the Federal Water Pollution Control Act so that standards can be set using the wildlife in which bioaccumulation takes place. For example, PCB may not be detectable in a water sample, but because of its physical and chemical properties it can biomagnify 25 million times between lake water and a herring gull egg. In order to measure developmental effects, you have to examine the animals, not the water.

Ecosystem standards would give leverage to regulatory programs to go back to the sources of the contaminants and implement strategies to reduce them. Remember, at the same time wildlife exposure in the basin is reduced, human exposure would be reduced as well.

2. Updating Risk Assessment for Persistent, Toxic Chemicals

Our second recommendation, which was addressed at length in our book, calls for updating the health standards for fish consumption. Current standards are based on (1) total organochlorine compounds, not on their toxic components, and (2) the probability of developing cancer. To assess risk and set standards for exposure to persistent toxic chemicals, developmental effects must be considered as well as cancer, and the toxic components of complex chemicals must be dealt with

individually.

CONCLUSION

World Wildlife Fund and The Conservation Foundation appreciate the Subcommittee's and Mr. Nowak's leadership in improving Great Lakes water quality. We would be happy to work with you further and to answer any questions.

TESTIMONY PRESENTED TO THE HOUSE SUBCOMMITTEE
ON WATER RESOURCES

H. R. 4323 - THE GREAT LAKES WATER QUALITY
IMPROVEMENT ACT OF 1990

GORDON K. DURNIL, CHAIRMAN

UNITED STATES SECTION, INTERNATIONAL JOINT COMMISSION

MAY 2, 1990

My name is Gordon Durnil and I am the Chairman of the United States Section of the International Joint Commission. Accompanying me today are the Secretary of the United States Section of the Commission, David LaRoche and Mr. Michael Vechsler, a Senior Advisor in the Canadian Section of the Commission, which is located in Ottawa, Ontario, Canada. Mr. Vechsler's presence here today underscores the bi-national character that the International Joint Commission (Commission) has sustained since its creation in 1909, a subject I will refer to in more detail later in this presentation.

Before presenting some of the Commission's current thinking on Great Lakes Water Quality Agreement matters, and before commenting on the proposed legislation that is the subject of today's hearing, I would like to provide some background on Commission involvement with the Great Lakes.

In 1909, the United States and Great Britain, on behalf of Canada, which was then not fully self-governing, negotiated a Boundary Waters Treaty (Treaty) to facilitate the use of waters flowing across the common boundary. The Treaty was designed to prevent disputes between the two countries over the use of boundary waters, and to resolve questions which might arise between the United States and Canada. To assist the two Governments in the implementation of the Treaty's provisions, an independent organization known as the International Joint Commission (Commission) was formed. The Commission is a bi-national, unitary body comprised of three Commissioners from each country who oversee and approve certain uses of our shared fresh water resources. The establishment of the Commission has enabled the United States and Canada to utilize the boundary waters to mutual advantage without the case by case negotiation demanded of all other such types of resource use. Since its inception some 80 years ago, the Commission has acted on a variety of boundary water matters, providing peaceful and timely solutions and recommendations when views have differred. As a result, the purpose of the Treaty has been achieved.

The Commission serves in a dual capacity. As a quasi-judicial body it has jurisdiction over matters affecting the levels and flows of boundary waters. The Commission also acts as an advisory body, investigating and making

recommendations on matters referred to it by the two Governments relating to those waters. In recent years, an increasing amount of the Commission's work has focused on the Great Lakes.

The Commission has had continuing Great Lakes responsibilities since 1912, when it received a reference from Governments to study the problem of pollution along the boundary generally, and in particular the connecting channels of the Great Lakes. The Commission's report at that time concluded that conditions along the boundary, and particularly in the connecting channels, ranged from perilous to disgraceful. The Commission has, through the 20th century, continued to report on water quality in the Great Lakes.

In 1970, the Commission issued a Report on pollution of the lower lakes. The Commission found that the waters of the lower lakes were being polluted on both sides of the boundary, "...to an extent which is causing injury to health and property on the other side of the boundary," referring to Article IV of the Boundary Waters Treaty. The Commission identified water quality objectives which, if met, would enable both countries to fulfill their mutual obligations under the Treaty. The Commission recommended that these objectives be formally adopted by the two countries and that the United States and Canada enter into agreement on programs

and measures to be taken in order to achieve them. It was also recommended that the two countries develop compatible and coordinated programs, in concert with provincial and state governments, to control pollution of the lakes from phosphorous, pesticides, toxic and hazardous materials, and other pollutants.[1] Pursuant to this Report, President Nixon and Prime Minister Trudeau signed a Great Lakes Water Quality Agreement (Agreement) in 1972 on behalf of their two countries. The 1972 Agreement set forth general and specific objectives for water quality, and outlined programs and measures which the countries agreed to establish as part of the joint cleanup effort. In 1978, during the Carter Administration, the two countries reaffirmed their commitment to restore and enhance the water quality of the Lakes by entering into a second, more comprehensive agreement. As you can see, Mr. Chairman, historically, the Great Lakes issue has transcended partisan politics. Regardless of party, Republicans and Democrats have embraced the need for cooperation between the United States and Canada so that the admirable objectives of the Water Quality Agreement would be met.

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[1] 1970 Report of the International Joint Commission on Pollution of Lake Erie, Lake Ontario and the International Section of the St. Lawrence River.

These Agreements have led to a substantial increase in Commission Great Lakes work. The Commission is charged with monitoring progress being made by our two countries in meeting the Purpose and the General and Specific Objectives of the Agreement. Indeed the 1978 Agreement requires the Commission to report to the Federal, State and Provincial Governments no less frequently than biennially concerning progress toward the achievement of the general and specific objectives of the Agreement. Three weeks ago today the Commission issued its Fifth Biennial Report. In that report we concluded, among other things, that based on available data, the health of our children is threatened as a result of our exposure to persistent toxic substances, even at very low ambient levels, and it would be imprudent not to take immediate action. The data we examined included findings that sixteen Great Lakes wildlife species near the top of the food web had suffered reproductive problems or declines in populations and that consumption of certain Great Lakes fish posed a threat to women of child-bearing age, who passed these toxic substances on to their offspring. The Commission also encouraged additional research to determine the precise magnitude of the threat.

The Commission used unusually strong language in its report in an attempt to forcefully communicate what we perceive to be the seriousness of the threat and the need for all segments of society to contribute to solutions. We pointed out

that despite the signifcance of the Great Lakes and our collective rhetoric to restore and enhance them, we as a society continue to mortgage their future by poisoning, suffocating and otherwise threatening them. Further, Mr. Chairman, we concluded that what our society has failed to realize is that, what we are doing to the Great Lakes, we are doing to ourselves and to our children.

These conclusions provided the basis for the Commission recommending to the Governments of the United States and Canada that they:

- o review and strengthen all Great Lakes fish consumption advisories, and re-evaluate stocking programs for those fish which also carry advisories for human consumption;

- o incorporate the principle of reverse onus into regulatory policies and programs by mandating pretesting of new chemicals to determine their potential harm to the environment or human health, prior to approval for production and use;

- o define how the 11 critical pollutants identified by our Water Quality Board are used, stored and released into the Great Lakes Basin Ecosystem by nonpoint rural

and urban sources and outline measures that have been and will be taken to prevent their further release into the lakes, and report on the extent to which these pollutants have been explicitly considered in discharge permits to give assurance that no such discharges are permitted;

- o designate Lake Superior as a demonstration area for zero discharge where no point source discharges are allowed for any persistent toxic substances;

- o incorporate the Great Lakes ecosystem as a priority topic in school curricula throughout the basin and beyond, to ensure that our children understand the importance of a healthy Great Lakes ecosystem to our future; and

- o fully inform and involve local governments to ensure they accept responsibility to assist in Agreement implementation.

In making these recommendations, the Commission urged in its report that new levels of coordination and cooperation be required among all levels of government, industry,

non-governmental organizations and the public to ensure that necessary actions are taken to protect our health and that of our children. We noted that because the problems are societal in nature, solutions will require societal action, and thus Governments alone cannot be expected to do everything required to eliminate the threats to human health and the environment.

Mr. Chairman, the Governments of the United States and Canada deserve very high praise for having entered into the Water Quality Agreements, which are considered to be models of international cooperation. I mentioned earlier that the Federal Governments alone should not and cannot be expected to carry the full burden of Agreement implementation. The problems we are trying to cope with in the lakes have taken generations to produce. In many respects they are a consequence of the way we lead our day-to-day lives. In that sense every individual in the Great Lakes Basin has a role to play in implementing the Agreement. We also recognize, however, that the Agreement is a commitment undertaken by our respective Federal Governments and that in many important ways they must be at the forefront of initiatives to realize its fulfillment. One avenue available to the Governments is to ensure that legislation, standards and other regulatory measures are tied specifically to the Agreement Purpose and its Objectives. In fact the Commission in its Fifth Biennial

Report suggested three specific approaches that Governments could undertake in this regard. They include recommendations that:

- o the Parties and all levels of government, including local authorities, cooperatively develop and implement appropriate legislation, standards and/or other regulatory measures that will give enforceable effect to the principles and objectives of the Agreement on a basinwide basis.

- o additional review and coordination measures be put into effect to ensure other legislation and/or regulations presently in place that affect matters relevant to the Great Lakes environment -- or those enacted in the future -- are not inconsistent with Agreement Objectives.

- o the measures devised pursuant to the foregoing include provisions for initiation, implementation and coordination of action at all levels of government to enforce the enacted laws and/or regulations.

This appearance, as you know Mr. Chairman, is quite an unusual undertaking for the Commission. Being a bi-national organization and working by consensus as we do, we have as a

general matter avoided commenting on the specifics of legislative proposals on either side of the boundary, be they at the federal level or the jurisdictional level. But the Commission sees the need to make legislation compatible with the Agreement as being so important to implementation, we have decided to appear before you today.

The legislation which is the subject of this hearing has among its purposes several which track very closely the Commission's observations and concerns found in our Fifth Biennial Report. These include making adherence to the Agreement an end point in the work of government agencies, improved accountability of various agencies involved in Agreement related work, and the need to promote a better understanding of the effects of toxic pollutants on the Great Lakes ecosystem and the food chain in the Great Lakes, and the implications of such effects on human health. The latter point is an important one for we are now confronted with the knowledge that living organisms in the Great Lakes basin are not only vulnerable to persistent toxic chemicals because of their carcinogenic and mutagenic effects, but other more subtle disease and dysfunctionality outcomes some of which were referred to earlier - deformities, metabolic changes, behavioral and hormonal changes, and immunosuppression.

Remedial Action Plans, another area of emphasis in the Commission's report, is also a feature of your legislation.

The Commission in its report spoke very strongly of the need to take immediate actions to prevent releases of persistent toxic contaminants to the Great Lakes - St. Lawrence River Basin ecosystem, of ways to assist people in avoiding their exposure to persistent toxic contaminants and the need for programs to remediate areas degraded by the presence of persistent toxic contaminants. These Commission views as expressed in its Fifth Biennial Report are very consistent with the purposes and a number of the programs called for in your legislation. We are delighted to see this activity in the legislative arena, and we are hopeful that this legislative activity, coupled with federal agency and jurisdictional response to the problems of the lakes, will result in an expedited effort to remediate what the Commission considers to be a threat to the health of our children posed by the presence of persistent toxic contaminants in the Great Lakes Basin ecosystem.

I feel that my statement here this morning, Mr. Chairman, would be incomplete if I did not add some remarks regarding what I consider to be the importance of the resource we are talking about today.

There is no question that the Great Lakes are a unique national and international natural resource. The Lakes contain 90% of surface fresh water supplies for North America. The Basin is not only home for over 40 million people, it is also the heart of North American industry, as well as a superb recreational resource for citizens of both countries. This already invaluable fresh water resource is becoming ever more valuable to the United States and Canada as other sources of surface and ground water are depleted. The continued peaceful shared use and coordinated concern over the future of these waters serve as a model of international cooperation for the rest of the world to follow.

Mr. Chairman, the Great Lakes System does not exist as a group of isolated lakes. The slow-paced but determined flow of the Upper to the Lower Lakes means that the actions of one will someday impact on its neighbor, and upon its neighbor, and so on through the system. Our countries must understand that contamination does not recognize international borders. We must honor our obligations under the Boundary Waters Treaty of 1909 and the 1978 Great Lakes Water Quality Agreement. And we must preserve for future generations of Americans and Canadians what is truly a magnificent natural resource.

NATIONAL WILDLIFE FEDERATION

Great Lakes Natural Resource Center
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WRITTEN TESTIMONY OF TIM EDER
GREAT LAKES NATURAL RESOURCE CENTER
NATIONAL WILDLIFE FEDERATION

ON H.R. 4323
THE GREAT LAKES WATER QUALITY IMPROVEMENT ACT

BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES

May 2, 1990

Introduction

Chairman Nowak and members of the Subcommittee, thank you for this opportunity to testify today on H.R. 4323, the Great Lakes Water Quality Improvement Act, on behalf of the National Wildlife Federation ("NWF"). NWF is the nation's largest not-for-profit conservation organization with over 5.8 million members or supporters. Contamination of Great Lakes sport fish, waterfowl, and wildlife, and the threat posed to human health is of particular concern to NWF, in part because many of our members are anglers and hunters. Since 1982, NWF's Great Lakes Natural Resources Center, in Ann Arbor, Michigan, has operated a program of scientific research, litigation, education and advocacy focussed on toxic chemical contamination problems in the Great Lakes.

Existing state and federal water quality standards and pollution control programs are inadequate to protect the Great

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Lakes ecosystem. Two important reasons for the failure of the current approach are 1) the unwillingness of EPA and the Great Lakes States to take seriously the requirements of the Great Lakes Water Quality Agreement (GLWQA), and 2) EPA's failure when setting national criteria and guidance to recognize that the Great Lakes are especially susceptible to poisoning from persistent bioaccumulative toxic substances. H.R. 4323 addresses both of these problems.

Within the last year, several reports have described the extent of the toxic chemical contamination problem in the Great Lakes. Last June, NWF released the results of a two-year study on the health risks of eating Lake Michigan sport fish. We warned all anglers to reduce their consumption of the largest fish because of the cancer risks from just four of the dozens of carcinogens found in the fish. Children and women of childbearing age were also warned not to eat any of the Lake Michigan fish we studied because of the risk of reproductive and developmental problems.

More recent reports from the Conservation Foundation and the International Joint Commission ("IJC") have reinforced NWF's conclusions. These reports also suggest that Great Lakes waterfowl and wildlife may be even more severely threatened than humans. Some species, like the Bald Eagle, have difficulty reproducing near the shores of the Great Lakes because of chemical poisoning of the fish they eat, even though inland populations are flourishing.

The IJC's recent Fifth Biennial Report to the U.S. and Canada articulates the concerns being expressed by the public across the Great Lakes basin.

> When available data on fish, birds, reptiles and small mammals are considered along with this human research, the Commission must conclude that there is a threat to the health of our children emanating from our exposure to persistent toxic substances, even at very low ambient levels. (IJC, 1990, p. 15.)

Despite this consensus on the extent of the problem, the state and federal governments currently administer the Clean Water Act in a way that allows continued dumping into the Great Lakes ecosystem of even the most dangerous toxic chemicals, including PCBs, dioxins, furans, hexachlorobenzene, lead, and mercury. Moreover, there is a serious lack of uniformity among the Great Lakes States in their water quality standards ("WQS") and in the procedures they use to implement their WQS to control sources of toxic pollution. The variations among the states in their pollution control programs encourage competition for polluting industries, ignores the fact that the Lakes are one interconnected ecosystem, and militates against the development and implementation of the comprehensive, binational strategy to eliminate contamination from persistent toxic chemicals recommended by the IJC.

Furthermore, EPA and the states have ignored the legal obligations of the U.S./Canada Great Lakes Water Quality Agreement (GLWQA), and Section 118 of the Clean Water Act, by adopting

WQS and pollution control regulations that are inconsistent with the requirements of the GLWQA.

For all of these reasons, NWF supports H.R. 4323. This legislation is necessary because the states and EPA have failed to make the GLWQA more than just empty promises, despite the clear intent of Section 118. H.R. 4323 will help put legal teeth behind the Agreement's promises of eliminating sources of persistent toxic pollution to the Great Lakes.

My testimony will focus on Section 5 of H.R. 4323 requiring Great Lakes Specific Water Quality Standards. However, NWF strongly supports the provisions of H.R. 4323 requiring the development and implementation of Remedial Action Plans (RAPs) and Lake-Wide Management Plans. From our experience, the governments' track record at meeting deadlines and integrating the GLWQA's RAP and Lake-wide Management Plan provisions into their enforcement of the Clean Water Act has been dismal. For example, Region V of EPA recently denied an NWF petition requesting that they use Section 304(l) of the Clean Water Act to make the RAP's being developed throughout the basin legally enforceable. I am including a copy of NWF's petition and EPA's denial with this testimony and I ask that these documents be included in the record of this hearing. NWF has also sued EPA challenging the inadequacies in the Lake Michigan Toxics Management Strategy. H.R. 4323 would also address these problems.

H.R. 4323 is necessary even though EPA's Great Lakes Initiative is already underway.

The numeric water quality criteria and implementing procedures being developed under EPA's Great Lakes Water Quality Initiative would, if finally adopted, fulfill some of the requirements of H.R. 4323. However, this should not be viewed as a reason why the legislation is not necessary. Enactment of H.R. 4323 will ensure that the Initiative fulfills its potential and that the criteria and implementing procedures developed under the Initiative are adopted as enforceable requirements in state WQS.

EPA began its Great Lakes Initiative, in part, in response to litigation brought by NWF challenging EPA's approval of Wisconsin's WQS as contrary to the GLWQA. The purpose of the Initiative is to implement the goals of the GLWQA through the development of Great Lakes specific water quality criteria and implementing procedures. (U.S. EPA, June, 1989). We disagree that EPA needs to publish these new procedures and criteria before it begins enforcing the Agreement: nevertheless, NWF supports the Initiative and our staff is participating on the drafting committees[1].

There are several reasons why passage of H.R. 4323 will ensure that EPA's Great Lakes Initiative fulfills its potential. First, EPA is currently under no legal obligation to complete the

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[1] The Director of NWF Great Lakes office, Mark Van Putten, serves as Co-Chair of the Initiative's Public Participation Work Group. Also, NWF Wildlife Toxicologist, David Zaber, recently submitted a detailed proposal to the committee developing water quality criteria to protect wildlife.

Initiative, or to promulgate new regulations or publish new guidance upon its completion. We are concerned that EPA headquarters may later prove to be reluctant to allow one region of the country to enact water quality standards different than the rest of the country. This concern is heightened by the recent departure of Region V Water Division Director, Charles Sutfin, a leading proponent of the Initiative.

Second, H.R. 4323 will ensure that the criteria and implementing procedures developed by the Initiative are adopted and enforced by the states. An essential component of H.R. 4323 is its requirement that the "Great Lakes States shall adopt water quality standards for the Great Lakes which, at a minimum, incorporate the criteria and utilize the guidance..." (Emphasis added.) We have insisted from the outset of the Initiative that it must result in legally enforceable uniform water quality standards and implementing procedures. To date, EPA has been unwilling to commit to this.

Third, H.R. 4323 will ensure that the final product of the Initiative is an improvement over the status quo. It is still too early in the Initiative process to tell whether the states and EPA will take full advantage of the opportunity it presents. We are concerned that the effort to achieve consensus among the states may result in the lowest common denominator. The language of H.R. 4323 currently requires that the Great Lakes specific numeric water quality criteria be no less stringent than existing national § 304(a) criteria. While this provision will help, we

suggest that H.R. 4323 be strengthened to require that the criteria and implementing procedures be stringent enough to implement fully all relevant provisions of the GLWQA.

Finally, H.R. 4323 is essential because of the slow progress of the Initiative thus far. H.R. 4323 gives EPA one year from the date of enactment to publish its criteria and guidance. Assuming that H.R. 4323 is enacted late this year, EPA will have had more than two years to complete the Initiative. This is longer than EPA's original timetable, which has already slipped.

U.S. EPA and the Great Lakes States have not made the GLWQA enforceable by incorporating it into Water Quality Standards and pollution control programs.

The GLWQA is a remarkable and visionary document. It sets forth the guiding principles necessary to protect and restore the Great Lakes, and requires that these principles be carried out in accordance with a holistic ecosystem approach. The most important principle in the Agreement is that persistent toxic substances shall be virtually eliminated and that regulatory programs for persistent toxic substances should be guided by a philosophy of zero discharge (Article II and Annex 12).

The Agreement itself is significant, but it is irrelevant if its principles are not reflected in enforceable domestic law. NWF and the public in the Great Lakes basin believe in the Agreement, and believe that it must be woven into the legal fabric of the Clean Water Act if its promises are to be fulfilled.

Unfortunately, the track record of EPA and the states has been dismal with regard to incorporating the Agreement into

enforceable law. NWF has focussed much of our resources over the past several years on trying to reform the Great Lakes States' water quality standards because WQS are the legal "trigger" for so many provisions of the Clean Water Act[2]. During the triennial reviews of WQS required under § 303, we have worked with citizens' groups in virtually every Great Lakes State to advocate improved water quality standards and pollution control regulations that will better protect the Great Lakes. We have also urged EPA to disapprove some states' proposed rules because these proposals are inadequate and, in some cases, directly contradictory to the provisions of the Agreement.

Despite the requirements of the GLWQA and the clear intention of Section 118, EPA and the states continue to approve WQS that fall far short of, or are in direct contradiction with the Agreement[3]. In EPA's denial of our petition requesting that EPA disapprove Wisconsin's proposed WQS because of these incon-

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[2] Not only are water quality standards important for generating water quality-based effluent limits for point source dischargers, they serve several other purposes, including to identify "Toxic Hot-Spots" --bodies of water needing additional clean-up attention (§ 304(l)); to identify bodies of water that require allocation of total maximum daily loads (§ 303(d)); and to identify the need for and prescribe controls on non-point sources of pollution.

[3] One particularly egregious example of these contradictions was the State of Wisconsin's approval of "Zones of Initial Dilution" in areas immediately downstream from point source discharges. Wisconsin (and other states) allows pollution levels in these zones to be lethal to aquatic life in direct contravention of Annex 2(2)(d) of the GLWQA, which provides that... "These [Point Source Impact] Zones shall not be acutely toxic to aquatic species..."

sistencies and contradictions, EPA claimed that their current regulations and guidance did not give them adequate authority to carry out the requirements of the Agreement (EPA, May, 1989). We disagree. We believe the Agreement is legally enforceable and that EPA has adequate authority under the Clean Water Act. We believe Congress' intent in passing Section 118 was to eliminate any ambiguity that the U.S. Government, through EPA should implement the Agreement as domestic law.

Since the current approach has failed, in part due to EPA's and the states' continued quibbling over the legal enforceability of the GLWQA, H.R. 4323 is needed.

Current national water quality criteria and guidance on implementing procedures are inadequate because of the unique nature of the Great Lakes.

The Great Lakes are unique not only because of the legal requirements of the GLWQA, but also because they are particularly sensitive to persistent toxic substances. Contrary to the GLWQA, EPA's approach to setting national numeric water quality criteria guidelines and implementing procedures under § 304(a) treats all toxic chemicals equally. EPA sets "acceptable" concentrations of even the most harmful toxic substances through the establishment of numeric criteria. The GLWQA, in contrast, recognizes a distinction between persistent and non-persistent toxic pollutants. For non-persistent toxic pollutants the Agreement's policy is "none in toxic amounts," an approach that is analogous to setting "acceptable" concentrations through the § 304(a) criteria. However, for those toxic chemicals that are persistent, the

Agreement requires "virtual elimination" from the Great Lakes ecosystem consistent with a philosophy of zero discharge. Annex 1 suggests that criteria for persistent toxic substances are only acceptable as interim measures.

The key point is that EPA's national approach is designed only to prevent harmful concentrations of toxics in the immediate downstream vicinity of a discharge into a flowing river. This approach ignores the fact that, unlike most rivers, the Great Lakes do not quickly flush. Instead, the Great Lakes act as a sink for whatever is dumped into them. Therefore, even very low concentrations of persistent toxic chemicals can bioaccumulate to dangerous levels in the Lakes and their fish and wildlife. EPA must set criteria for the open waters of the Lakes that recognize the persistence and propensity to bioaccumulate of certain toxic pollutants, and then publish implementing procedures that work backwards from these open water criteria to control all sources.

H.R. 4323 wisely emphasizes the importance of protecting Great Lakes wildlife from poisoning by toxic chemicals. Section (5)(A)(i) requires EPA to publish criteria "...to protect human health and the biological integrity of the Great Lakes (including aquatic life and wildlife)..." Even though there is a wealth of information on the tragic effects of toxic chemicals on Great Lakes wildlife --mink and bald eagles that can't reproduce, cormorants and other birds with twisted beaks and other birth

defects --most Great Lakes States and EPA have failed to incorporate this information into numeric water quality criteria[4].

Because the problem of toxic chemicals poisoning Great Lakes wildlife is so important, NWF is developing its own procedure to protect wildlife as part of our Model Water Quality Standards project. Our staff wildlife toxicologist is working full time to develop numeric criteria and other measures that will protect wildlife from toxic chemicals in the water they drink and food they consume.

Another important provision of H.R. 4323 is its requirement that EPA publish "guidance with respect to.... implementing procedures (including control of point and nonpoint sources of pollution), anti-degradation, and pollution prevention." Section 2(e), new paragraph (5),(A),(ii). (Emphasis added.) These "implementing procedures" can be far more important than the actual numeric water quality criteria. For example, all of the states currently have "implementing procedures" that allow dischargers of toxic chemicals to dilute their wastes instead of removing or treating them. Because of the unique sensitivity of the Lakes, we object to allowing any dilution of the most dangerous chemicals, particularly those that are persistent and that bioaccumulate. The upper Great Lakes are essentially a closed system that takes hundreds of years to flush. Therefore, con-

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[4] Wisconsin has developed a procedure for protecting wildlife from toxic chemicals and has developed criteria for five chemicals.

trolling the total amount of persistent toxic pollutants entering the Lakes, not just the concentrations, is of critical importance.

Currently, the implementing procedures governing the amount of dilution allowed varies widely among the Great Lakes States. As a result, even though the states often adopt virtually identical numeric criteria for a specific pollutant, there are substantial differences in the amount of pollution dumped by similar dischargers on different sides of the same Lake. In one example, Wisconsin's dilution factor would allow hundreds of times more dioxin to be dumped into Lake Superior from a pulp and paper mill than would Michigan's procedures.

There are numerous other implementation issues that we have identified that must be addressed through EPA's Great Lakes Initiative. In a report submitted to EPA in June of 1989[5], we identified the following criteria development issues and implementing procedures that must be addressed:

1. Reducing mass loads of persistent toxic substances into the Great Lakes ecosystem.

2. Immediately implementing a "Toxics Freeze" policy to prevent any net increases in the dumping of the most dangerous poisons.

3. Assuring public participation in EPA review of the state WQS.

4. Applying uniform WQS to nonpoint pollution sources.

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[5] The report, titled **Promises To Keep** has been endorsed by over 25 Great Lakes environmental groups and fishing organizations. The report spells out a four-part program for cleaning up the Great Lakes including an agenda of the issues that should be addressed by EPA in the Initiative.

5. Protecting public health from combined exposure to toxic pollutants.

6. Prohibiting dilution as a substitute for pollution treatment.

7. Requiring innovative monitoring for pollutants, including biomonitoring.

8. Requiring uniform risk levels.

9. Assuming higher fish consumption rates.

10. Protecting wildlife.

11. Designating uses and classifying streams.

12. Antidegradation and antibacksliding.

13. Reducing toxics use and preventing pollution.

14. Prohibiting variances.

15. Implementing Remedial Action Plans.

16. Cleaning up contaminated sediments.

I am attaching a copy of **Promises To Keep** to my testimony and ask that it be included in the record of this testimony. The essential point is that H.R. 4323 must require that EPA publish enforceable requirements on implementing procedures as well as numeric water quality criteria. We recommend that this section be amended to give EPA specific direction that these implementing procedures not allow the use of dilution for persistent or bioaccumulative toxic substances. These criteria and implementing procedures must be made enforceable through adoption in each state's water quality standards, and must be used to control all sources of toxic pollution.

Conclusion

The Great Lakes are remarkable and unique bodies of water. They deserve the special recognition and protection provided them by the GLWQA. Because of the failure of our governments' current approach to recognize the requirements of the GLWQA, the health of the Great Lakes ecosystem is suffering and our future is seriously threatened.

The public in the Great Lakes basin believes in the GLWQA and wants to see it implemented. We will no longer accept the lip service currently being paid to it by the Great Lakes States and U.S. EPA. If the Agreement is worth the paper it is printed on, it must be enforced under the domestic laws and regulations of the U.S. and the Great Lakes States.

H.R. 4323 will ensure that the Great Lakes Water Quality Agreement is incorporated into the legal provisions of the Clean Water Act. We support its adoption.

Thank you for this opportunity to present our views and I will be happy to answer your questions.

NATIONAL WILDLIFE FEDERATION
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FEDERAL EXPRESS

October 3, 1989

Valdas V. Adamkus, Regional Administrator
U.S. Environmental Protection Agency
Region V
230 South Dearborn
Chicago, Illinois 60604

Re: Petition to list certain waters under CWA Section 304(l)(1)(B) and Comments of the National Wildlife Federation on 54 Fed. Reg. 24030 et. seq. (June 5, 1989)

Dear Regional Administrator Adamkus:

On behalf of the National Wildlife Federation, enclosed please find for filing an original and two copies of a Petition to List Certain Waters Under The Clean Water Act § 304(l)(1)(B), along with the Appendix thereto, and Comments of the National Wildlife Federation On 54 Fed. Reg. 24030, et. seq. (June 5, 1989).

Please stamp one copy of this Petition and Comments, with Appendix, with the date of filing and return it to me in the enclosed self-addressed, postage-prepaid envelope. If you have any questions about this filing, please feel free to contact me.

Very truly yours,

Mark Van Putten
Counsel

MVP/ks
Enclosures

BEFORE THE U.S. ENVIRONMENTAL PROTECTION AGENCY

Re: Implementation of Clean Water Act § 304(l)

PETITION TO LIST THE FOLLOWING WATERS UNDER § 304(l)(1)(B):

St. Louis River/Bay
Deer Lake-Carp Creek/River
Manistique River
Menominee River
Fox River/Southern Green Bay
Sheboygan River
Milwaukee Harbor
Waukegan Harbor
Grand Calumet/Indiana Harbor Canal
Saginaw River/Bay
Clinton River
Rouge River
River Raisin
Detroit River
Maumee River
Black River
Ashtabula River
Cuyahoga River
Kalamazoo River

AND COMMENTS OF THE NATIONAL WILDLIFE FEDERATION ON 54 FED. REG. 24030, ET. SEQ. (JUNE 5, 1989)

Prepared by:

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Tim Eder, Project Manager
Rayne Lamey, Legal Intern
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INTRODUCTION

Pursuant to Clean Water Act § 304(l)(3) and Administrative Procedure Act § 553(e), the National Wildlife Federation ("NWF") hereby petitions the U.S. Environmental Protection Agency Region V Administrator to include the navigable waters described in Exhibits A - S on the "toxic hot spots short list" required by CWA § 304(l)(1)(B). To the extent that the proposed lists submitted by the states to EPA do not include all of the waters within the boundaries of these nineteen proposed areas,[1] NWF hereby petitions EPA to disapprove those lists. In the comments integrated into this petition, NWF is also requesting that, for the navigable waters listed in the exhibits hereto, EPA formally adopt the "remedial action plans" ("RAPs") developed pursuant to Annex 2 of the Great Lakes Water Quality Agreement ("GLWQA")[2] as

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[1] See 54 Fed. Reg. 24030 (June 5, 1989). EPA Approvals and Disapprovals of Individual Control Strategies (ICSs) Submitted Under § 304(l) of the CWA. Hereinafter cited as "June 5 Fed. Reg."

[2] The Boundary Waters Treaty of 1909 is a treaty between the United States and Great Britain, on behalf of the Dominion of Canada, to provide for "adjustment and settlement of all ... questions" regarding the use of the boundary waters. 1909 Boundary Waters Treaty, United States-Great Britain, 36 Stat. 2448; T.S. No. 548. In 1972, the first Great Lakes Water Quality Agreement was signed by the United States and Canada, pursuant to the Boundary Waters Treaty. The GLWQA was amended in 1978 in recognition of the need to understand and to manage effectively the problem of toxic substances loadings into the Great Lakes. 30 U.S.T. 1384, T.I.A.S. 9257. The 1978 Agreement was amended in 1983, adding specific objectives for phosphorous load reductions into the Great Lakes. T.I.A.S. 10798. The 1978 Agreement, as amended in 1983, was revised by protocol on November 18, 1987.

the "individual control strategies" ("ICSs") required by the Clean Water Act § 304(l)(1)(D).

The National Wildlife Federation ("NWF") is the nation's largest not-for-profit conservation organization with over 5.8 million members, contributors and supporters. NWF members regularly use the waters described in the attached Appendix for fishing, swimming, boating and other recreational activities. Their use of these waters is injured in fact and adversely affected by the toxic pollution of these waters as described herein. NWF is concerned with protecting the nation's aquatic ecosystems from the adverse impacts of toxic pollution. In that regard, NWF played a lead role in the development and enactment of the Water Quality Act of 1987,[3] including § 304(l) of the Clean Water Act ("CWA").[4] NWF is, therefore, interested in EPA's implementation of this important law. NWF has also played a lead role in the development of the 1987 Protocol amending

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(Treaty unnumbered by State Department, as of yet). However, the 1987 Protocol has been incorporated into the CWA § 118 by Pub.L. 100-688, Title I, § 1008, 102 Stat. 4151 (Nov. 18, 1988). Therefore, all references to the GLWQA of 1978 ("GLWQA"), include both the 1983 Amendments and the 1987 Protocol.

[3] Water Quality Act, Pub.L. No. 100-4 (Feb. 4, 1987).

[4] The Federal Water Pollution Control Act, 33 U.S.C. § 1251 et seq. (Supp. 1987) was originally passed on June 30, 1948 with amendments on Oct. 18, 1972, Pub.L. 92-500; on Dec. 27, 1977, Pub.L. 95- 217; on Feb. 4, 1987, Pub.L. 100-4. The statute, including all amendments, is herein referred to as the "Clean Water Act" or "CWA". The Water Quality Act of 1987 will be referred to as the "CWA 1987 Amendments".

the Great Lakes Water Quality Agreement, with the Director of NWF's Great Lakes office serving as a member of the U.S. delegation that negotiated them. Since then, NWF has monitored the implementation of the Agreement and sought to have the requirements of the GLWQA integrated into Clean Water Act regulatory programs.

I. PETITION FOR LISTING OF WATER SEGMENTS

In accordance with CWA § 304(l)(3) and Administrative Procedure Act § 553(e), NWF hereby petitions the EPA Region V Administrator to include the water segments, described in Exhibits A - S in Appendix 1, in each appropriate state's § 304(l) "short list,"[5] and, to the extent that the states have failed to include the proposed water segments described in the attached exhibits in their § 304(l) listings, NWF petitions EPA to disapprove the states' submissions. In certain circumstances, where EPA has approved a state's submission to "short list" a water, and where that water comprises only a portion of the Area of Concern ("AOC"),[6] NWF is also petitioning EPA to "short list" the remainder of the AOC.

Two of Congress' goals in the 1987 amendments to the CWA were protection of "our waters from increasing amounts of

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[5] "...[A] list of all navigable waters in such State for which the State does not expect the applicable standard ... will be achieved...due entirely or substantially to discharges from point sources of any...[priority pollutants]." 33 U.S.C. § 1314(l)(1)(B), CWA § 304(l)(1)(B).

[6] An "Area of Concern" is a designated geographic area "that fails to meet the General or Specific Objectives of the [Great Lakes Water Quality] Agreement where such failure has caused or is likely to cause impairment of beneficial use or of the area's ability to support aquatic life." GLWQA, Annex 2, § 1(a). Remedial Action Plans are to be developed and implemented by the U.S. and Canada in cooperation with the States and Ontario to restore these areas to full beneficial uses. GLWQA, Annex 2, § 4(a).

toxic chemicals"[7] and creation of a "new program of stringent water quality-based controls on toxic hotspots clustered around... the...Midwest"[8] by 1992. Toward this goal, the states must submit to EPA lists of all areas to which § 304(l) should apply. However, EPA's recent approval and disapproval of state § 304(l) listing plans[9] shows that its proposed implementation of the § 304(l) program will not result in the achievement of Congress' goals for that section. Congress' goals will not be achieved without designation of the all the Great Lakes AOCs on the § 304(l)(1)(B) list.

NWF believes that only by listing those water segments[10] identified as AOCs under the GLWQA on the § 304(l) "short list" will EPA meet Congress' intent. Moreover, in the comments NWF provides herein as part of the public

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[7] 133 Cong. Rec. S1697 (February 4, 1987) (remarks of Sen. Mitchell).

[8] 133 Cong. Rec. S1701 (February 4, 1987) (remarks of Sen. Glenn) (emphasis added).

[9] June 5 Fed. Reg., supra note 1, at 24030.

[10] "...[T]he Administrator shall, at a minimum, consider for listing under this subsection any navigable waters for which any person submits a petition to the Administrator for listing not later than 120 days after such last day." 33 U.S.C. § 1314(l)(3), CWA § 304(l)(3). Such petitions for listing are due no later than October 4, 1989 for Region V. June 5 Fed. Reg., supra note 1, at 24035.

participation process[11] regarding the creation of adequate ICSs[12], NWF proposes an implementation strategy for § 304(l) that will effect controls on both the point and nonpoint sources of toxic pollution.

In this petition, NWF proposes the addition of nineteen water segments, identified by the International Joint Commission ("IJC")[13] and the Great Lakes Water Quality Board ("GLWQB")[14] as Areas of Concern, to the § 304(l) "short-list".

To identify these waters, NWF has reviewed information collected by the IJC and the Great Lakes National Program

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[11] Id.

[12] Section 304(l)(1)(D) provides that an individual control strategy must "...produce a reduction in the discharge of toxic pollutants from point sources..." identified under section 304(l)(1)(C), which is "...sufficient, in combination with existing controls on point and nonpoint sources of pollution, to achieve the applicable water quality standard as soon as possible, but not later than three years after the date of the establishment of such strategy." 33 U.S.C. § 1314(l)(1)(D); 54 Fed. Reg. 23886, col. 3 (June 2, 1989)(emphasis added). (Hereinafter cited as "June 2 Fed. Reg.") These elements of an ICS are codified at 40 C.F.R. § 123.46(a).

[13] The IJC was established by the Boundary Waters Treaty. Its powers and responsibilities under the Great Lakes Water Quality Agreement are set forth in the Great Lakes Water Quality Agreement, art. VII.

[14] The Great Lakes Water Quality Board was established to assist the IJC in the exercise of its powers and responsibilities under the Great Lakes Water Quality Agreement. GLWQA, art. VIII, § 1.

Office (GLNPO) of EPA regarding the water quality conditions existing in these AOCs located in American waters.[15]

Based on NWF's review of this information, NWF has determined that the AOCs identified in Exhibits A - S, hereby incorporated by reference, meet the requirements for § 304(l)(1)(B) listing.[16] To meet the requirements for listing on the "short list", waters must exist within each state for which the state does not expect the applicable narrative or numeric water quality standard under § 303 of the CWA to be achieved, due entirely or substantially to discharges from point sources of any toxic pollutants listed pursuant to section 307(a) of the CWA.[17]

The attached exhibits identify each proposed addition to the § 304(l)(1)(B) list and include sufficient information to

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[15] EPA has recognized the usefulness and validity of reliance on existing and readily available data and reports from sources such as the above for the purposes of identifying and proposing waters for § 304(l)(1)(B) listing. "There are many existing lists, reports and assessments that provide valuable information to states when identifying and preparing lists of waters...These include...reports of adverse water quality conditions by the International Joint Commission and the Great Lakes Water Quality Board ...." June 2 Fed. Reg., supra note 12, at 23884, col. 3.

[16] There has been a formal submission of a Remedial Action Plan (RAP) to the IJC for seven of the nineteen AOCs identified in the attached exhibits. These seven proposed areas thus meet the conditions for short listing. While there has not yet been a formal RAP submission for the other proposed water segments, NWF believes that the water quality assessment of these areas is sufficiently advanced that NWF has relied upon them for the purposes of this petition.

[17] June 2 Fed. Reg., supra note 12 at 23880.

meet the minimum criteria for § 304(l) "short listing". Each exhibit identifies one proposed addition to the § 304(l)(1)(B) list and briefly summarizes the pertinent information.[18] In satisfaction of the minimum requirements for § 304(l) listing[19], NWF has included in each Exhibit: a description of the geographic location of the water segment proposed for listing, the water quality standard ("WQS") being violated, a summary of pertinent water quality-related data (as derived from the list set forth in 40 C.F.R. § 130.10(d)(6)), a listing of the priority pollutants causing the WQS violation, and the point sources that substantially contribute to the WQS violation.

The AOC listed in each exhibit is impaired substantially or entirely due to point source discharges, which include combined sewer overflows (CSOs), stormwater discharges, and contaminated sediments. Several of the criteria used to determine "impairment of beneficial uses" under the GLWQA are essentially the same as the minimum criteria for § 304(l) "short listing" found in 40 C.F.R. 130.10(d)(6).[20] This overlap is indicated in the exhibits in the section entitled

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[18] NWF has kept brief the information contained in each exhibit in compliance with EPA's intention that § 304(l) petitions be substantive and informative, but not burdensome. June 2 Fed. Reg., supra note 12, at 23894.

[19] Requirements per June 2 Fed. Reg., supra note 12, at 23894.

[20] See GLWQA, Annex 2, § 1(c) and 40 C.F.R. 130.10(d)(6).

"Pertinent Water Quality-Related Data & Information." For example, Annex 2's criterion of "restrictions on fish and wildlife consumption" closely approximates § 130.10(d)-(6)(i)'s criterion of "waters where fishing or shellfish bans and/or advisories are currently in effect or are anticipated". Similarly, Annex 2's criteria of "degradation of fish and wildlife populations" and "fish tumors or other deformities" parallels 130.10(d)(6)(ii)'s criterion of "waters where there have been repeated fishkills or where abnormalities (cancers, lesions, tumors, etc.) have been observed in fish or other aquatic life during the last ten years." Annex 2's "beach closings" criterion is very similar to 130.10(d)(6)(iii)'s "waters where there are restrictions on water sports or recreational contact." An exceedance of any one of the Annex 2 criteria may be sufficient for AOC designation, just as an exceedance of any one of the 130.10(d)(6) criteria is sufficient for § 304(l)(1)(B) "short listing." For this reason, the data prepared pursuant to the GLWQB's designation of AOCs should be regarded as authoritative for the purposes of § 304(l) listing, and the entire AOCs should be added to the § 304(l)(1)(B) "short-list." [21]

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[21] In at least one instance (e.g., Kalamazoo River), NWF has petitioned EPA to "short list" a water segment which is larger than the AOC in order to include known point sources significantly contributing to water quality impairments. To the extent that this situation exists in any other AOC, NWF petitions to include on the "short list" an area larger than the AOC which accounts for all point sources significantly contributing to

Using Exhibit N,[22] the Detroit River, as an example, the data included in each Exhibit should be read as follows: First, there is a brief geographical description of the AOC at issue. The numeric or narrative water quality standard being violated and pertinent water quality-related data and information are then listed. For example, use impairments on the Detroit River involve restrictions on fish and wildlife consumption, degradation of fish and wildlife populations, fish tumors and other abnormalities, as well as swimming restrictions and beach closings. As discussed above, this GLWQA information often overlaps with the minimum criteria for § 304(l)(1)(B) listing stated in 40 C.F.R. 130.10(d)(6). The lower case Roman numerals (e.g., "ii") preceding identified use impairments in the Exhibits are cited as found in 40 C.F.R. 130.10(d)(6) and display this overlap. The impairments listed for any individual water segment are not necessarily the complete set of listing criteria under 40 C.F.R. § 130.10(d)(6), but only the most readily available.

The next entry in the Exhibit is an alphabetical listing of the priority pollutants causing a water quality standard violation. A parenthetical following each pollutant indicates whether the toxicant is present in the water and/or

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water quality impairments.

[22] Exhibit N is at p.17 of Appendix 1.

sediments. The priority pollutants list contains those pollutants cited in readily available studies, but, as with the water quality impairments, the list is not necessarily exhaustive. An abbreviated notation of the source in which NWF located this data follows each pollutant listing. These sources are cited in full at the end of the Appendix.

The remainder of the Exhibit presents the point source dischargers substantially contributing to WQS violations and an accompanying citation of the toxicants for which each is responsible. For example, Exhibit N lists, among other dischargers, "Rouge Steel-- Cd, Cr, Cu, CN, Pb, Ni, Zn (MDNR 1988a)." Each of the dischargers listed must be controlled as part of an ICS prepared pursuant to § 304(l).

In some cases, NWF has determined that a water segment meets the minimum § 304(l)(1)(B) listing criteria based on the presence of sediments, deposited entirely or substantially due to operating point sources, which have been classified as "heavily polluted" by EPA standards. While this classification was developed for the purposes of evaluating the suitability of sediments for open lake dumping, it is also useful to determine whether the applicable water quality standard under § 130.10(d)(4) has been or is likely to be violated. For the AOCs in which "heavily polluted" sediments are present, this classification indicates that a violation of narrative water quality standards is reasonably likely. It is reasonable to assume

that, over time, the contaminated sediments will release pollutants back into the water column in toxic amounts, in violation of water quality standards.

EPA has recognized that such a situation does meet the minimum requirements for listing under § 304(l)(1)(B). EPA stated that "in-place sediments which have been substantially or entirely contaminated or deposited by priority pollutant loadings currently being discharged from active and operating point sources" are subject to 304(l)(1)(B) short-listing as contamination due to point source pollution.[23] EPA further recognizes that

> the evaluation for listing on the section 304(l)(1)(B) list is based on whether there is an excursion or expected excursion above an applicable narrative or numeric criterion for a priority pollutant which is designed to protect the designated uses. If the contaminated sediment is causing biological damage it may be impairing the designated uses of a water, and therefore a state's narrative criteria for toxics may be exceeded. Or if the sediment is releasing a priority pollutant back into the water column in amounts that exceed the allowable concentrations, the state's numeric criteria is being exceeded. In either of these situations, the waters, as well as the appropriate dischargers, should be listed ....[24]

Therefore, EPA should assume for the purposes of § 304(l)(1)(B) listing that "heavily polluted" sediments will, over time, release contaminants in toxic amounts back into

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[23] June 2 Fed. Reg., supra note 12, at 23,883, col. 2.

[24] Id. (emphasis added).

the water column. Existence of such contaminated sediments therefore indicates an expected exceedance of state water quality standards. This should be sufficient to list the AOC for the purposes of § 304(l)(1)(B).

II. REMEDIAL ACTION PLANS AS INDIVIDUAL CONTROL STRATEGIES

NWF hereby requests that, for the navigable waters listed in the Exhibits hereto, EPA formally adopt the Remedial Action Plans developed pursuant to the GLWQA as the ICSs required by § 304(l)(1)(D) of the Clean Water Act. (Hereinafter "ICS-RAP"). NWF additionally requests EPA to disapprove any proposed ICSs that do not include legally enforceable controls on all nonpoint sources that substantially contribute to the actual or expected WQS violations.

Once a water segment is listed on the § 304(l) "short list", an ICS is required for each point source in that water.[25] But, the ICS is not limited to controlling just point sources. ICSs must require reductions in the discharge of priority pollutants from point sources on the "short list", which are "sufficient, in combination with existing controls on point and nonpoint sources of pollution, to achieve applicable water quality standards as soon as possible but not later than three years after establishment

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[25] 33 U.S.C. § 1314(l)(1)(D), CWA § 304(l)(1)(D).

of the ICS."[26] "The supporting documentation for an ICS [is to] show evidence that the impact of nonpoint sources on the identified segment has been considered...[and is] to utilize all available authorities to control nonpoint sources, including section 319 of the CWA."[27] If the states fail to develop adequate ICSs, EPA must work in cooperation with the states to develop and implement the ICSs.[28]

For each AOC designated under the GLWQA, a RAP must be developed and implemented to remedy the impairments of beneficial uses.[29] Each RAP includes a definition and detailed description of the environmental problem existing in the AOC, including a definition of the beneficial uses that are impaired and the degree of impairment. It must also include a definition of the causes of use impairment, a description of all known and suspected sources of pollutants and an evaluation of remedial measures currently in place. The RAP must include the selection of remedial measures necessary to restore beneficial uses and a schedule for implementation.[30]

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[26] June 2 Fed. Reg., supra note 12, at 23,869, col.3 (emphasis added).

[27] Id. (emphasis added).

[28] 33 U.S.C. § 1314(l)(3).

[29] GLWQA, Annex 2, § 4.

[30] GLWQA, Annex 2, § 4(a).

Annex 2(e) of the GLWQA requires that RAPs be developed in consultation with the public. In many of the AOCs under consideration in this petition, the public has played, or is currently playing, a very active role in the development of the RAPs. These groups and individuals have a strong desire to see their labors come to fruition in the implementation of the RAPs. For this reason, adoption of the RAPs as ICSs further ensures both funding and public support for the implementation of the plans.

Only by incorporating RAPs into ICSs can EPA discharge its obligation to implement the GLWQA. Under the Agreement, the United States must develop and implement programs and other measures to fulfill the purposes and objectives of GLWQA, including "measures to ensure the development and implementation of Remedial Action Plans for Areas of Concern pursuant to Annex 2."[31] Pursuant to CWA § 118, EPA is charged with fulfilling this mandate on behalf of the United States.

EPA is legally bound to fulfill the mandate of the GLWQA. The GLWQA is an executive agreement that has been both explicitly and tacitly approved by a majority of both houses of Congress. Congress explicitly approved the GLWQA in CWA § 118.[32] That section adopts the goals of the GLWQA,

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[31] GLWQA, art. VI, § 1(n) (emphasis added).

[32] 33 U.S.C. § 1268, CWA § 118.

directs EPA to carry out the terms of the Agreement and provides funding so that the U.S. may fulfill its obligations under the GLWQA.[33]

Congress has also implicitly approved the GLWQA as domestic law by refusing to enact contrary legislation when it has often had the opportunity to do so (for example, during revisions of the CWA or the Ocean Dumping Ban Act of 1988). Although the GLWQA was made more stringent in the 1972, 1978, 1983 and 1987 amendments, Congress never enacted legislation contrary to the GLWQA. Instead, it affirmed the GLWQA in § 118 of the Clean Water Act.[34]

It has been well established that an executive agreement is binding United States law if no prior or subsequent statutes or treaties conflict with the agreement.[35] The

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[33] The funding is provided in 33 U.S.C. § 1268(h), CWA § 118(h). Such funding often serves to bring international agreements into effect. See L. Henkin, Foreign Affairs and the Constitution 175 (1972); Note, "Superseding Statutory Law By Sole Executive Agreement: An Analysis of the American Law Institute's Shift in Position," 23 Va. J. Int'l L. 669, 682 (1983).

[34] The 1988 Amendments to the Ocean Dumping Ban Act provided that § 118 of the CWA applies to the 1987 Protocol to the GLWQA. See note 37, infra.

[35] See Restatement (Third) of the Foreign Relations Law of the United States § 111 (1 & comment d, § 303 comment a & reporters' note 1) (1986), hereinafter cited as Restatement (Third); B. Altman & Co. v. U.S., 224 U.S. 583, 601 (1912) (treating an executive agreement, which was authorized by statute, as equivalent to a treaty for judicial review under the circuit court of appeals act); Weinberger v. Rossi, 456 U.S. 25, 36 (1982) (under a statute forbidding employment discrimination except where permitted by "treaty," "treaty" was held to include executive agreement).

GLWQA was enacted pursuant to the anti-pollution provision of the Boundary Waters Treaty, the sole U.S. treaty addressing Great Lakes water quality issues. Moreover, the Agreement has been approved, not superseded, by Congress in its 1987 Clean Water Act amendments[36] and in the Ocean Dumping Ban Act of 1988.[37] In the absence of any conflicting federal law, and indeed, with the presence of both a supporting treaty and subsequent affirming legislation, the GLWQA is binding U.S. law. Thus, the EPA has a legal obligation to implement the Agreement.

Designation of the RAPs as ICSs is the best and most efficient mechanism by which EPA can fulfill its duties under both the CWA § 304(l) and the GLWQA. Moreover, by giving legal force and effect to the work already completed in the RAP process, EPA will avoid the needless duplication of effort required in re-doing the studies completed pursuant to the GLWQA.

Use of RAPs as ICSs also meets Congress' intention that there be one comprehensive ICS which integrates controls on both point and nonpoint sources for each listed water segment. In discussing the requirement that states submit lists of point sources that impair water quality in "short listed" areas, Congress stated that the state submission must

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[36] 33 U.S.C. § 1268, CWA § 118.

[37] Pub. L. 100-688, tit. I § 1008, 102 Stat. 4151 (Nov. 18, 1988).

"also include an individual control strategy which the State determines will produce a reduction in the discharge of toxic pollutants from point sources..."[38] Such evidence is clear that Congress intended that the states develop a single integrated scheme to implement the remediation of "short listed" waters.

Formulation of the ICS-RAP would be easily accomplished. To the extent a RAP calls for remedial action by point or nonpoint sources, it should be formally adopted by EPA as the ICS for a designated water. Any additional point source controls required by the RAP would be addressed by new NPDES permits issued as a component of the ICS-RAP. To the extent an ICS-RAP calls for additional nonpoint source controls, the ICS-RAP must also include legally enforceable requirements for those controls. Such nonpoint source control requirements could take many different forms. In Michigan, for example, they may be administrative orders issued by the Water Resources Commission. The exact nature of these controls should be determined during the ICS-RAP development process.

Therefore, NWF requests that, for each of the petitioned AOC water segments, the completed (or in-progress) RAP be designated the ICS for the point source dischargers of that

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[38] H.R. Rep. No. 1004, 99th Cong. 2d Sess. 127 (1986) (Conference Report); 132 Cong. Rec. H10568 (Oct. 15, 1986), col. 1 (emphasis added).

site. NWF also requests that EPA disapprove any proposed ICSs that do not include appropriate legal controls on nonpoint sources.

III. CONCLUSION

NWF respectfully requests that EPA approve its petition:

(i) to add the Area of Concern water segments, as described in Exhibits A - S, to their respective states' § 304(l)(1)(B) "short-lists",

(ii) to disapprove state lists pursuant to § 304(l) to the extent that those lists do not include the waters identified by NWF in this petition,

(iii) to adopt formally the RAPs formulated pursuant to the GLWQA as ICSs under § 304(l)(1)(D) and,

(iv) to disapprove any proposed ICSs that do not include legally enforceable controls on nonpoint sources.

Respectfully submitted,

Dated:

Mark Van Putten (RL)

Mark Van Putten, Director
National Wildlife Federation
802 Monroe
Ann Arbor, MI 48104
(313) 769-3351

Testimony of Tim Eder/National Wildlife Federation, May 2, 1990 - Attachment 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF

APR 16 1990

5WQS-TUB8

Mark Van Putten, Counsel
National Wildlife Federation
Great Lakes Natural Resource Center
802 Monroe
Ann Arbor, Michigan 48104

Dear Mr. Van Putten:

Thank you for your October 3, 1989, petition to Mr. Valdas V. Adamkus on behalf of the National Wildlife Federation (NWF) to list certain waters under Section 304(l)(1)(B) and your comments concerning the United States Environmental Protection Agency's (USEPA) June 5, 1989, Federal Register notice (54 FR 24030, et. seq.). In particular, NWF requested that the USEPA:

1. add the Area of Concern (AOC) water segments to their respective States' Section 304(l)(1)(B) "short-lists";

2. disapprove State lists pursuant to Section 304(l) to the extent that those lists do not include waters identified by the NWF in the October 3, 1989, petition;

3. adopt formally the Remedial Action Plans (RAPs) formulated pursuant to the Great Lakes Water Quality Agreement (GLWQA) as Individual Control Strategies (ICSs) under Section 304(l)(1)(D);

4. disapprove any proposed ICSs that do not include legally enforceable controls on nonpoint sources.

I will respond to each of the above requests in order.

1. Add Areas of Concern Water Segments to the Section 304(l)(1)(B) Short-Lists and Disapprove State Lists That Do Not Include These Waters.

Section 304(l)(1)(B) of the Clean Water Act (CWA) requires each State to submit a list of all navigable waters for which the State does not expect standards for toxic pollutants listed pursuant to Section 307(a) to be achieved. Nonattainment must be due entirely or substantially to discharges from point sources. In determining that a point source discharge is entirely causing or substantially contributing to a water quality standards violation, either of two conditions must be met (40 C.F.R. Section 130.10(d)(5)):

(i) Existing or additional water quality based limits on one or more point sources would result in the achievement of an applicable water quality standard for a toxic pollutant; or

(ii) The discharge of a toxic pollutant for one or more point sources, regardless of any nonpoint source contribution of the same pollutant, is sufficient to cause or is expected to cause an excursion above the applicable water quality standard for the toxic pollutant.

In general, the AOCs represent areas of toxic contamination that are the result of numerous human activities, not the least of which are deposits of contaminated sediments resulting from historical discharges from point sources. In considering the AOCs for inclusion on the 304(l)(1)(B) list, the judgement as to whether or not a particular point source or group of point sources were entirely or substantially contributing to a water quality standards violation had to be made within the context of present day levels of a contaminant in a discharge and the degree of past contamination that may be currently contributing to impaired uses and exceedances of water quality criteria. Therefore, the existence of contaminated sediments alone is insufficient to determine that a water should be listed on the 304(l)(1)(B) list. The Agency specifically considered this issue in developing the regulations implementing Section 304(l) and concluded that a water should be listed only if an active point source is entirely or substantially contributing to or causing the sediment contamination, which is in turn impairing the uses of the water (54 FR 23883).

In conducting our review of the State 304(l)(1)(B) submittals, USEPA considered all available information, including draft or completed RAPs, point source discharge information, and contaminated sediment information. In addition, my staff has again reviewed the specific information provided in Exhibits A-S of your petition. Based on this review, we find that the DePere Wastewater Treatment Plant should be added to the Wisconsin list of direct discharges that satisfy the conditions of Section 304(l)(1)(C) of the Clean Water Act. In addition, waterbody segment number 4030204006 of the Fox River will be added to the list of waters required under Section 304(l)(1)(B) of the Act. We have notified the facility and the Wisconsin Department of Natural Resources of this addition.

You correctly point out in your petition that the criteria included in Annex 2(1)(c) of the GLWQA are similar to the categories of information described by 40 C.F.R. Section 130.10(d)(6) which should be considered for listing waters under Section 304(l). However, waters that fall into the categories listed under 40 C.F.R. Section 130.10(d)(6) are not necessarily appropriate for listing under Section 304(l)(1)(B). Instead,

40 C.F.R. Section 130.10(d)(6) requires the states to "evaluate" all the data and determine whether the waters should be listed according to the criteria provided in 40 C.F.R. Sections 130.10(d)(2) and 130.10(d)(5). As a result, not all AOC waters were short-listed. However, many of the specific facilities, pollutants and waterbody segments listed in your petition have been short-listed because they satisfy the appropriate 304(l) requirements. In addition, the AOC waters did satisfy the requirements for listing under Section 304(l)(1)(A)(i) and (ii) and were appropriately identified on these lists by the States.

2. Adopt RAPs as ICSs Under Section 304(l)(1)(D)

An ICS is defined at 40 C.F.R. Section 123.46(c) as: (1) a final National Pollutant Discharge Elimination System (NPDES) permit with supporting documentation showing that effluent limits are consistent with an approved wasteload allocation, or other documentation which shows that applicable water quality standards will be met not later than three years after the ICS is established; (2) a draft NPDES permit with a schedule for issuing a final permit; or, (3) the decision document for an on-site response action under the Comprehensive Emergency Response Compensation and Liability Act (CERCLA). USEPA regulations (40 C.F.R. Section 123.46(a)) require that an ICS be developed for each point source identified under Section 304(l)(1)(C) rather than each water segment identified under Section 304(l)(1)(B). USEPA is bound by these regulations.

RAPs are called for in the 1987 revised Great Lakes Water Quality Agreement and constitute a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses in the Areas of Concern. RAPs are not NPDES permits with supporting documentation and are not narrowly focused on discharges of toxic pollutants from point sources. Furthermore, unlike Section 304(l)(1) and 304(l)(1)(D) of the CWA, specific time limitations on the development and implementation of the RAPs are not included in the GLWQA. Currently only one RAP (Lower Fox River-Green Bay) has been formally approved under a State water quality management plan.

To the extent that ICSs are developed for facilities within AOCs to control toxic pollutants, either through NPDES permit limitations or through a remedial action under CERCLA, the ICS may become an integral part of the RAP. However, RAPs, even once adopted by a State and approved as part of a State water quality management plan, are not directly enforceable (although they are binding on the States). Therefore, RAPs cannot ensure, by themselves, that limitations will be achieved within the deadlines of Section 304(l) and it is not appropriate to adopt RAPs as ICSs.

3. Disapprove ICSs That Do Not Include Legally Enforceable Controls on Nonpoint Sources.

USEPA regulations do not require legally enforceable controls on nonpoint sources (NPS) as a part of an ICS because Congress did not give USEPA the

authority to impose such controls as a part of an ICS (54 FR 23887). The CWA clearly contemplates the implementation of ICSs through NPDES permits for point sources by prescribing "the establishment of effluent limitations under Section 402". For NPSs, Congress developed Section 319 which requires the identification of waters not meeting water quality standards because of NPS pollution and the development and implementation of NPS management programs to control this pollution. As explained in the preamble to the regulations, USEPA does not believe that Congress intended for USEPA to establish a NPS control program under Section 304(l) because Congress wrote a separate Section in the CWA for NPS programs (CWA Section 319).

I appreciate your comments on the State submittals and the Agency's actions taken to date. I assure you that I am deeply committed to restoring the beneficial uses of the AOCs and the USEPA will work to achieve this goal within the requirements of Section 304(l) where appropriate, and also within the context of the broader authorities and requirements of the Clean Water Act.

Sincerely yours,

Kenneth A. Fenner, Chief
Water Quality Branch

Testimony of Tim Eder/National Wildlife Federation, May 2, 1990 - Attachment 3

NATIONAL WILDLIFE FEDERATION

Great Lakes Natural Resource Center
802 Monroe, Ann Arbor, MI 48104
(313) 769-3351

June 13, 1989

Mr. Valdas Adamkus, Administrator
Region V, U.S. EPA
230 South Dearborn Street
Chicago, Illinois 60604

Dear Mr. Adamkus:

On behalf of 21 Great Lakes environmental organizations, we are pleased to submit the enclosed report, **Promises to Keep**. This report was prepared with the support of the groups listed on the cover page.

In this report, we are calling on EPA and the Great Lakes States to begin immediately a process to develop uniform Great Lakes water quality standards and pollution control requirements to implement the Great Lakes Water Quality Agreement.

We look forward to our meeting with you tomorrow to discuss this report and we look forward to working with EPA and the Great Lakes States in the coming months to achieve the goals we have set forth.

Very Truly Yours,

Mark Van Putten, Director
Great Lakes Natural Resource Center

cc. Great Lakes Environmental Administrators

PROMISES TO KEEP

MAKING THE GREAT LAKES WATER QUALITY AGREEMENT WORK THROUGH THE DEVELOPMENT OF UNIFORM WATER QUALITY STANDARDS AND U.S. REGULATIONS

June 14, 1989

A Report Prepared By:

National Wildlife Federation,

in cooperation with:

Atlantic States Legal Foundation
Canadian Institute For Environmental Law and Policy
Citizens For A Better Environment
Clean Water Action
East Michigan Environmental Action Council
Grand Cal Task Force
Great Lakes United
Illinois Wildlife Federation
Indiana Wildlife Federation
Izaak Walton League, Indiana Division
Lake Michigan Federation
League of Ohio Sportsmen
Michigan Environmental Council
Michigan United Conservation Clubs
Minnesota Conservation Federation
Ohio Environmental Council
Sierra Club
West Michigan Environmental Action Council
Wisconsin's Environmental Decade
Wisconsin Wildlife Federation

CONTENTS

I. Summary.....1 - 3

II. The Problem: Federal regulations and guidance are needed to require uniform implementation of the Great Lakes Water Quality Agreement by the States.....4 - 11

III. The Solution: Legally enforceable U.S. regulations to implement the Clean Water Act in a manner consistent with the Great Lakes Water Quality Agreement.....12 - 21

IV. Conclusion.....22 - 23

SUMMARY

The Great Lakes Water Quality Agreement is a model for international cooperation in protecting shared waters. In the Agreement, Canada and the United States adopted a set of guiding principles for protecting and restoring Great Lakes water quality. The most important of the Agreement's principles is Canada's and the U.S.' pledge that persistent toxic substances will be virtually eliminated from the Great Lakes in accordance with the philosophy of zero discharge.

The Agreement itself is significant, but it is irrelevant if its principles are not reflected in domestic policy, law and regulation. Current Federal, Provincial and State water quality regulations and requirements restrict the extent to which the Agreement's General and Specific Objectives can be implemented --especially the pledge to eliminate pollution by persistent toxic substances.

Despite compelling evidence of the serious harm being caused by toxic pollution in the Great Lakes ecosystem --fish that can't safely be eaten and birds that can't reproduce or are born with twisted beaks and other hideous deformities --governments continue to allow the dumping of more toxic pollutants into the Lakes. For example, States' water quality rules, which are approved by the U.S. Environmental Protection Agency, permit industries and cities to continue dumping PCBs, dioxins and other persistent toxics directly into the system. In virtually every jurisdiction in the region, regulations governing polluters condone dilution of toxic sewage as a substitute for reducing the source of the pollution or eliminating it altogether.

While the direct, legally permitted dumping from industries and cities continues, other diffuse sources of toxics, which may be even more important, are even further from being under control. Researchers have estimated that the atmosphere is the source of over half of the PCBs entering Lakes Michigan and Superior. Rainwater washes pollutants from cities and farms into waterways. Hazardous waste dumps and contaminated sediments lining the shores and bottoms of rivers and harbors ooze their poisoned potions into the Lakes.

Great Lakes environmental groups[1] have repeatedly called on all levels of government --Federal, Provincial, State and the International Joint Commission --to ensure that the requirements of the Great Lakes Water Quality Agreement (GLWQA) are incor-

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[1]Throughout this report, the use of "the Great Lakes environmental groups," or "the environmental groups," or, "we," refers to the groups listed on the cover page.

porated into their administrative rules and regulations when they are revised.

This report is directed at the U.S. and State Governments. Similar scrutiny of Canadian governments' efforts will be forthcoming.

All eight of the Great Lakes States, except Wisconsin, are currently reviewing and revising their Water Quality Standards (WQS) and regulatory programs. Wisconsin has just concluded a major overhaul of its water pollution control programs. During the Wisconsin review, the environmental groups repeatedly requested that the State incorporate changes in the rules to carry out the pledges in the GLWQA. The rules passed in Wisconsin failed to reflect the Agreement's guiding principles and in some cases they directly contradict the specific provisions of the Agreement.

Several environmental groups submitted a major report, titled Promises in Jeopardy, to the International Joint Commission (IJC) in September of 1988. This report asked the IJC's Water Quality Board to review proposed revisions to administrative regulations --like Wisconsin's rules --to ensure that the Agreement was being adhered to. They refused and sent us to the Federal Governments.

These environmental groups then made their case to the U.S. EPA in December of 1988. The groups pointed out that the Wisconsin proposals allowed the most dangerous toxics in the Great Lakes to be diluted and then dumped by Wisconsin polluters. The groups criticized Wisconsin's failure to regulate all PCBs as human carcinogens. These and other contradictions between Wisconsin's proposed rules and the letter and spirit of the GLWQA were pointed out to EPA by the groups in their request that EPA disapprove the rules.

Last month, EPA approved Wisconsin's rules. **This action starkly demonstrates the breach between the promises made by our governments in the GLWQA and the reality of their everyday actions. We will not accept the IJC, the EPA and the States playing "hot potato" with the responsibility for implementing the Great Lakes Water Quality Agreement. We, and the people of the Great Lakes basin, believe in it and are determined to make it work!**

Because of the failure of the U.S. regulatory system to carry out the promises of the GLWQA, we are calling for a total reform of water pollution control programs on the U.S. side of the Great Lakes basin. We are calling on EPA and the eight Great Lakes States to begin immediately a process that will result in the adoption of new water quality regulations containing these four components:

1. **Uniform water quality standards** and pollution control requirements for toxic pollutants to end competition between the States for heavy-polluting industries, such as paper mills;

2. **A "Toxics Freeze"** prohibiting any increased dumping of the most dangerous toxic chemicals into the air, water, or onto land within the Great Lakes Ecosystem;

3. **A timetable to reduce dumping** of these chemicals from all sources so that serious progress can be made by the year 2000 toward the goal of **Zero Discharge**, and

4. **A comprehensive pollution prevention strategy** to avoid the creation of toxic wastes.

This agenda does not require new Federal legislation, but it does require that EPA act aggressively to fulfill its responsibilities under the GLWQA.

EPA has recently taken an important step in the right direction. EPA's Region V Water Division has proposed that EPA and the Great Lakes States cooperate to develop new "guidance" designed to implement the GLWQA through regulations under the U.S. Clean Water Act. While we have informed EPA of our support for this concept, we are skeptical that it will result in the sweeping regulatory reforms needed to clean up the Great Lakes. Our skepticism stems from EPA's failure to integrate the public in a meaningful way into the process, the failure to include a specific agenda of issues to be resolved through the process and the failure to agree to make the final product legally enforceable.

Nonetheless, we see potential in EPA's proposal. We are willing to work with EPA and support the proposed process <u>if</u> EPA and the States will agree to use their process to reform the current water pollution regulatory system along the lines recommended in this report.

The purpose of this report is to delineate both the <u>process</u> we believe will be most productive and the <u>issues</u> that must be resolved in that process. The key issue in setting up the process is providing a meaningful role for the public.

Great Lakes environmental groups had a meaningful role in the recent negotiations leading to amendments to the GLWQA. Because of our involvement in that process, we are committed to seeing those promises implemented. With major revisions to pollution control programs currently under consideration in several of the Great Lakes States, it is time the U.S. and the States take action to honor their promises.

II.

THE PROBLEM: FEDERAL REGULATIONS AND GUIDANCE ARE NEEDED TO REQUIRE UNIFORM IMPLEMENTATION OF THE GREAT LAKES WATER QUALITY AGREEMENT BY THE STATES

Introduction

The Clean Water Act is the basis of water pollution control programs in the United States. All eight of the Great Lakes States have accepted and been delegated the responsibility of carrying out many of the Act's requirements.

The basic water pollution control requirements under the Clean Water Act are technology-based controls for certain categories of industry. The first round of these controls is largely in place, but these controls have proven inadequate to protect the Great Lakes, or to achieve the goals of the GLWQA.

Water quality standards (WQS) provide an additional tool under the Clean Water Act aimed at controlling pollution from both point and non-point sources. When the minimum technology-based requirements are insufficient to meet WQS in a water body, the States and EPA can impose controls as necessary to achieve the desired WQS.

The Clean Water Act spells out several other uses that are intended to be made of WQS. They are to be used to identify bodies of water needing additional clean-up attention --Toxic Hot Spots (Section 304(l)); they are to be used to identify bodies of water that are "water-quality limited" and require allocation of total maximum daily loads (Section 303(d)); they are to be used to identify and prescribe controls on non-point sources of pollution, and, they are linked to the development of fish consumption advisories. In general, WQS serve as a benchmark to evaluate the success of the Clean Water Act's regulatory programs.

The Components of Water Quality Standards Include More Than Water Quality Criteria.

Under the Clean Water Act, the States are required to establish numerical water quality criteria for specific pollutants (Section 303(c)(2)(B)). These criteria are usually based on the maximum concentrations of specific pollutants allowed in surface waters that will support designated uses, like drinking, swimming, and supporting a fishery that is safe to eat. Together with designated uses, antidegradation policies and procedures to protect high-quality waters, water quality criteria form the basic "package" of a State's water quality standards.

In addition, however, the **procedures** a State uses for applying water quality criteria to issue discharge permits and

control other sources of pollution are often spelled out in the same package of rules as the WQS. These application procedures are just as important as the actual standards. Yet, it is here that there is the greatest lack of uniformity among the Great Lakes States.

In this document, when we use the term "water quality standards" we are referring to the entire package of rules, regulations and standards by which surface waters in the Great Lakes Basin system are protected by the Federal and State governments. We do not include the technology-based effluent limitation guidelines under Section 301(b) in this definition.

Zero Discharge and Virtual Elimination, Not Water Quality Criteria, are the Ultimate Goals.

The fundamental principles of both the Great Lakes Water Quality Agreement and the Clean Water Act are that discharges of pollutants are to be eliminated. The GLWQA's policies of virtual elimination and zero discharge apply to persistent toxic substances. According to the GLWQA, non-persistent toxic substances should not be discharged in toxic amounts. The Clean Water Act's goal is to eliminate the discharge of all pollutants into the nation's waters as soon as technology becomes available.

Water quality standards, therefore, serve only as benchmarks of our progress toward the ultimate goal of zero discharge --they do not define "acceptable" pollution levels.

This distinction --between attaining water quality standards and achieving zero discharge --has been lost in recent years. As a result, U.S. water quality standards programs focus on achieving "acceptable" concentrations of harmful pollutants in the immediate vicinity of pollution sources.

This focus ignores the unique nature of the Great Lakes and the special problems created by persistent toxic substances. While preventing harmful concentrations is important, reliance on this approach ignores the fact that the Great Lakes are the ultimate recipient for most of the wastes that are discharged. Because of the extreme persistence of many pollutants, their propensity to bioaccumulate and the Lakes' long flushing times, very small concentrations of persistent toxic substances in the open waters of the Great Lakes can bioaccumulate to levels that are unsafe for humans, fish and wildlife in the Great Lakes ecosystem. For those compounds that are persistent and that bioaccumulate, it is the total mass entering the Lakes that is of concern, in addition to harmful concentrations.

In the 1987 amendments to the GLWQA, the potential contradiction between the goal of zero discharge and the

establishment of "acceptable" levels of toxic substances via WQS was addressed in Annex 1:

> Consistent with the policy stated in paragraph (a) of Article II and Paragraph 2 of Annex 12 that the discharge of any or all persistent toxic substances be virtually eliminated, the Specific Objectives set out in Annex 1 for such substances are adopted as interim objectives.

"Specific Objectives" are the GLWQA's equivalent to numerical water quality criteria.

The development of Great Lakes WQS and federal regulations to implement the GLWQA offers an opportunity to meld the goal of zero discharge with the water quality standards approach.

Current Federal and State Water Quality Programs Do Not Recognize the Unique Characteristics of the Great Lakes Nor the Extra Requirements of the GLWQA.

The GLWQA does recognize the Great Lakes' sensitivity to persistent toxic substances. For that reason, the GLWQA adopted the policy that the only "safe" amount of these substances is zero and that all inputs should be virtually eliminated. Critics of this goal say it is presently unrealistic until technology for "closed-loop systems" becomes more readily available.

The environmental groups disagree that zero discharge is unrealistic or solely dependant on new technology. We concur that expanded pollution prevention programs are needed. However, there are many areas where governments and polluters could do much more, right now, to achieve zero discharge. It is not, in all instances, necessary to wait for new technology to come along. Moreover, governments should do more to force the development of technology.

The GLWQA's imperative requires that, where possible, every action be taken to eliminate the discharge of persistent toxic substances. The development of uniform Great Lakes water quality standards and pollution control requirements can help meld the zero discharge/virtual elimination goal with the water quality standards approach. For example, the uniform Great Lakes requirements can define pollution prevention requirements that should be met prior to issuing discharge permits.

EPA Must Act Immediately To Develop Great Lakes Regulations.

The Clean Water Act requires that States review their WQS every three years. A 1987 amendment to the Act requires that States adopt numerical criteria for toxics (instead of narrative standards) by February, 1990. Every Great Lakes State, except

Wisconsin, is currently in the process of reviewing and revising their WQS.

During this review and revision process, many issues are being discussed and resolved that will have an enormous impact on the States' water pollution control programs. Some of the more important issues include: whether and how much dilution will be used when applying the numerical criteria to regulate pollution sources; what level of cancer risk is "acceptable," and how much fish is consumed on average by sport anglers.

The resolution of these issues will determine the adequacy of each States' water quality standards and regulatory programs. Thus, the ability of the States to implement the goals and objectives of the Great Lakes Water Quality Agreement will be determined by the resolution of these issues.

The importance of the different approaches taken by the States on these issues was illustrated last year when Michigan and Wisconsin were considering allowing a new pulp mill to locate on Lake Superior. According to one estimation, because of the dilution allowed under Wisconsin's water quality rules, **1,000 times more dioxin** would have been dumped into Lake Superior if the mill were to locate in Wisconsin rather than just across the border in Michigan.

This vividly illustrates the need for uniform regulations. Neither Lake Superior fish, nor dioxin dumped into the Lake, respect the boundary between Michigan and Wisconsin.

EPA and the States Have Not Used The Great Lakes Water Quality Agreement as the Determining Yardstick in Reviewing, Revising and Approving/Disapproving Proposed Changes in WQS.

Great Lakes environmental groups have repeatedly raised the promises of the GLWQA as justification for including strong provisions in WQS. We have been frustrated at the failure of State governments and the EPA to incorporate more of the GLWQA's requirements into WQS. For example, environmental groups repeatedly voiced their disappointment that several provisions in Wisconsin's newly-adopted WQS contradict the specific provisions, as well as the overall goal, of the GLWQA.

When these contradictions were raised both in Wisconsin and during the course of EPA's review of the Wisconsin proposals, a frequent response by government representatives was that the Wisconsin proposals were consistent with various EPA regulations and guidance issued under the Clean Water Act. In one specific incident, EPA acknowledged the contradiction between Wisconsin's

rules and the GLWQA but declined to disapprove them[2]. EPA's response was, "The implementation of this aspect of the GLWQA goes beyond current U.S. EPA guidance under the CWA." (Emphasis added. Response to Public Comments on Wisconsin Water Quality Standards, May 1989, U.S. EPA.)

EPA Already Has the Authority and Is Required to Implement the Great Lakes Water Quality Agreement.

Great Lakes environmental groups disagree with EPA's interpretation of its authority to implement the GLWQA. As the representative of the signatory to the GLWQA with Canada, EPA is required to interpret the GLWQA as legally enforceable; otherwise the Agreement is meaningless. EPA should use the requirements of the GLWQA as the yardstick to evaluate WQS and similar proposed programs from the States. Moreover, in passing the 1987 Great Lakes Amendment to the Clean Water Act, Congress gave EPA an even clearer directive to implement the GLWQA in a legally enforceable manner:

> Congress finds that--
> (B) the United States should seek to attain the goals embodied in the Great Lakes Water Quality Agreement of 1978 with particular emphasis on the goals related to toxic pollutants; and
>
> (C) the Environmental Protection Agency should take the lead in the effort to meet those goals, working with other Federal agencies and State and local authorities.

Clean Water Act, Section 118.

The Environmental Groups Have Sought Other Forums To Raise These Issues and Have Been Rejected.

In September of 1988, the environmental groups comprising the Wisconsin Campaign For Clean Water submitted a report titled, Promises in Jeopardy, to the International Joint Commission's Great Lakes Water Quality Board. This report asked the Water Quality Board to establish a procedure whereby significant water quality laws, rules and programs could be reviewed for consistency with the GLWQA. In its official response, the

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[2]The issue in question was "Zones of Initial Dilution," areas immediately downstream from point source discharges. Wisconsin's rules permit acute toxicity in these zones, in direct contravention of the Annex 2(2)(d) of the GLWQA. "...These [Point Source Impact] Zones shall not be acutely toxic to aquatic species nor shall their recognition be considered a substitute for adequate treatment."

International Joint Commission declined to provide this oversight and determined that it was EPA's responsibility to apply the GLWQA in reviewing State WQS submissions.

> ...the U.S. Environmental Protection Agency has the statutory responsibility to approve each state's water quality standards and other programs under the Clean Water Act. In the Commission's opinion, this process provides an opportunity to ensure that the commitments made under the Agreement are incorporated into state legislation. Emphasis added.

Valdas Adamkus and Elizabeth Dowdeswell, Co-Chairs of the IJC Water Quality Board to Mark Van Putten, National Wildlife Federation, December 6, 1988.

On December 20, 1988, the environmental groups submitted a petition to EPA, requesting that a formal public comment period be established prior to EPA's decision to approve or disapprove the Wisconsin rules. In the alternative, if EPA refused the public comment period, the environmental groups asked EPA to disapprove the Wisconsin rules because of (among other reasons) the contradictions between the Wisconsin proposals and the GLWQA. EPA denied the petition and refused to grant a formal public comment period.

We are frustrated at the lack of accountability for implementing the GLWQA. We believe that the Federal, State and Provincial Governments, plus the IJC, all share the responsibility for ensuring that the promises made to the people of the U.S. and Canada are honored. The actions called for in this report are aimed at making sure that U.S. and State water quality programs start honoring those promises.

- The Governors' Great Lakes Toxic Substances Control Agreement Seeks Uniformity Among States' Water Quality Standards.

In 1986 the eight Great Lakes Governors recognized that the differences between the States' regulatory programs provided the potential for one or more States to appear more attractive to economic expansion. In response, the Governors agreed in their Toxic Substances Control Agreement that:

> ...to attract new businesses to their States by lowering environmental and health standards, or weakening enforcement standards, is unacceptable...
>
> Therefore: 1. The signatory parties direct their environmental administrators to jointly develop an agreement by September 1, 1986, for coordinating the control of toxic releases and achieving greater

uniformity of regulations governing such releases within the Great Lakes Basin.

In his most recent State of the State message, Michigan's Governor Blanchard called "on the U.S. Environmental Protection Agency to require that all water quality standards adopted by states in the Great Lakes region be subject to public review and comment, and be examined for their consistency with the regional pollution agreements."

In recent discussions, the Great Lakes States environmental administrators have shown a willingness to work to develop uniform Great Lakes requirements. There is a unique opportunity before everyone in the region to take action that will achieve the goals of the our international and regional agreements and clean up the Lakes.

Great Lakes Environmental Groups are Committed to Improving Water Quality Standards and Have the Resources and Expertise to Participate in the Development of Great Lakes Regulations.

The public has a fundamental right to participate in governmental discussions and decisions regarding water pollution control programs to protect the Great Lakes. Many environmental groups have already made substantial organizational commitments to revisions in State WQS and numerous other Great Lakes problems.

In 1986, Great Lakes United conducted hearings in review of the GLWQA. This effort culminated when five Canadian and U.S. citizens' group representatives were named to the two countries' negotiating teams to work out amendments to the GLWQA. The Sierra Club has focussed much of its efforts on addressing the problem of air toxics through its Great Lakes Federal Policy Project. The Lake Michigan Federation is leading the efforts of many groups to address contaminated sediments issues.

The National Wildlife Federation (NWF) has been at the forefront of WQS discussions in several states over the last seven years. In December of 1988, NWF began a major project to develop "Model Water Quality Standards." The goal of this project is to develop a package of recommended reforms in WQS that will reflect the unique characteristics of the Great Lakes and the requirements of the GLWQA. The Model Water Quality Standards proposed by NWF, will, if adopted by the States, result, eventually, in achieving the goal of virtual elimination of persistent toxic chemicals and their effects on the Great Lakes ecosystem.

EPA Has Acknowledged the Need for Additional Guidance to Implement the GLWQA.

In the course of reaching a decision to approve the Wisconsin rules, EPA has determined that existing federal guidance and regulations may not be sufficient to achieve the goals of the GLWQA. Therefore, EPA Region V Water Division Director Charles H. Sutfin has issued a concept paper discussing the need for additional guidance. This proposal spells out a process that would result in an additional subchapter to EPA guidance developed under Section 304(a) of the CWA. The proposal reflects an admission by EPA that the current approach is not working due to:

* the lack of specific procedures to seek public review of the consistency of proposed WQS and the GLWQA goals;

* the lack of specific provisions for achieving the GLWQA's goal of virtual elimination of persistent toxic substances, and

* the lack of a formal mechanism to develop a U.S. position for negotiating with Canada on water quality objectives and other programs under the GLWQA.

EPA Needs A Mechanism to Develop a U.S. Position for the Negotiation of Specific Objectives with Canada, and For Incorporating Specific Objectives into U.S. Regulatory Programs.

Annex 1 of the GLWQA requires that the U.S. and Canada develop and adopt new and revised Specific Objectives. Currently, there are Specific Objectives for only 36 substances under Annex 1. In the past, there has been no formal public mechanism for developing the U.S. position for negotiating with Canada on the adoption of these Objectives.

Moreover, Specific Objectives that have been adopted under the GLWQA have not been incorporated into the U.S. regulatory framework. The environmental groups have long been critical of the U.S. and Canada for not enforcing the GLWQA. We maintain that the Agreement's Specific Objectives <u>should</u> be legally enforceable.

This proposed process --development of Federal Great Lakes WQS --will provide a basis for developing the U.S. negotiating position on Specific Objectives as well as ensuring that the Objectives that are eventually adopted are consistent with U.S. domestic law.

III.

THE SOLUTION: LEGALLY ENFORCEABLE U.S. REGULATIONS TO IMPLEMENT THE CLEAN WATER ACT IN A MANNER CONSISTENT WITH THE GREAT LAKES WATER QUALITY AGREEMENT

The environmental groups believe that EPA does not need additional guidance to require implementation of the GLWQA by the States. Nonetheless, we also recognize that the current approach is not working and must be reformed. Therefore, we have advised EPA that we support in concept the proposal developed by the Region V Water Division for developing Great Lakes guidance, and we are willing to work with them to develop new guidelines.

However, we believe the current proposal is flawed. For this process to work --to result in significant progress toward the Agreement's goal of zero discharge of persistent toxic substances --several modifications are crucial. The current proposal must be improved to ensure that:

* The public is adequately represented in all phases of the development process;

* The final product is legally enforceable;

* The process addresses several specific key Great Lakes issues in a manner consistent with the principles, General Objectives, Specific Objectives and Annexes to the Great Lakes Water Quality Agreement;

* The process proceeds along an aggressive timetable to be completed by June 1, 1990, and

* Current efforts to update state water quality standards are not delayed pending completion of the Great Lakes rules.

The Public Must Be Adequately Represented in All Phases of the Development of the Great Lakes Regulations.

EPA's current proposal for developing the Great Lakes guidance calls for three committees: the Steering Committee, the Technical Committee and a separate Public Participation Committee. EPA officials have stated that the public could attend the sessions of the Steering Committee and the Technical Committee, but the decisions would be made by the actual members --representatives of the Federal and State Governments. This approach is unacceptable.

The public --including environmental groups --has a right to be represented in the decision-making process concerning the protection and restoration of the Great Lakes. Too often, public participation in the development of government programs and administrative rules is treated as a final procedural step --something that is done to satisfy legal requirements after all of the controversial issues have been decided by government "experts". We reject that approach to public involvement. We have demonstrated in numerous forums that we have valuable technical, legal and political input to contribute to resolution of Great Lakes issues. Moreover, meaningful public involvement can help generate the grass-roots and political support that is critical to the success of Great Lakes programs.

During the negotiations on the 1987 amendments to the GLWQA, three U.S. and two Canadian citizens' group representatives were members of their respective country's negotiating teams. These public members participated in all caucuses and in the formal negotiations between the two countries. This process worked exceptionally well. Significant changes in the final amendments were made as a result of the public representatives' input. More importantly, as a result, the groups represented, as well as many other Great Lakes environmental groups, feel a strong commitment to see that the Agreement is implemented.

We propose that the development of uniform Great Lakes regulations to implement the GLWQA be guided by two decision-making bodies: a Steering Committee and a Technical Committee. The public should be represented on both committees. The Great Lakes environmental groups would select our representatives to the two committees. These representatives would be responsible for reporting back to the other members of the groups and seeking their input on key issues.

The Uniform Great Lakes Water Quality Standards and Pollution Control Requirements Should Be Legally Enforceable.

The current proposal from EPA Region V refers to developing Great Lakes "guidance." Throughout the rest of this paper, we will use the term "regulation" to connote the difference between our expectations and EPA's current vision. The distinction between federal regulations and federal guidance is that regulations are binding on EPA and the states and are less subject to misinterpretation or equivocation. Moreover, when evaluating a state's proposed WQS revisions, EPA may disapprove a state's proposal if it is inconsistent with guidance; however, EPA is required to disapprove a state proposal if it is inconsistent with regulations.

If the Great Lakes requirements are in the form of regulations, then EPA will have more leverage with which to enforce the requirements on the States. If the Great Lakes

States are unable or unwilling to carry out their water pollution control programs consistent with the Great Lakes requirements, then EPA should exercise its authority under the Clean Water Act to revoke the appropriate portions of the State's program. EPA would then be required to carry out those functions.

Water Quality Standards Issues Must Be Resolved Consistent With the GLWQA's Philosophy of Zero Discharge.

The foundation of the Great Lakes regulations must be to implement the goals, policies, General and Specific Objectives, and the Annexes of the GLWQA through Federal and State Clean Water Act programs. The most important principle of the GLWQA that must be addressed by these regulations is the policy of zero discharge of persistent toxic substances. The regulations must be consistent with this policy and must help move State water quality programs toward the goal of zero discharge according to a definite timetable.

An important example of the implications of the principle of zero discharge is how the Great Lakes regulations should deal with the establishment of numerical criteria for persistent toxic pollutants. To be consistent with both the specific provisions of Annex 1 of the Agreement and the overall goal of zero discharge, numerical criteria for persistent toxic pollutants should be adopted as interim criteria only; the ultimate goal for these pollutants is zero discharge.

The Regulations Should Result in a Set of Legally Enforceable Uniform Numerical Criteria For Toxic Pollutants in the Great Lakes.

Before zero discharge is achieved, a set of legally enforceable numerical criteria for toxic substances is needed to guide the cleanup and protection of the Great Lakes. The Great Lakes environmental groups believe government pollution control programs on all levels --U.S., Canadian, State and Provincial -- should be governed by one set of uniform minimum water quality criteria for the waters of the Great Lakes.

Currently, EPA has only published numeric criteria or guidelines for a limited number of toxic pollutants. In some cases these numbers may be adequate for the Great Lakes. However, even then they are not legally enforceable (unless adopted by the States) and there are other toxic pollutants known to be present and of concern in the Lakes for which EPA has not published criteria. Some of these other pollutants include octachlorostyrene, dibenzofurans, and dibenzodioxins (other than 2,3,7,8 TCDD).

The proposed Great Lakes criteria should use the existing federal criteria as a starting point. The Great Lakes criteria

should be adjusted, if necessary, to account for the unique ecological characteristics of the Great Lakes. These numbers should be adopted as enforceable water quality criteria for the Great Lakes.

The Great Lakes Regulations Must Address Several Specific Issues That Are Critical to the Protection of the Great Lakes.

The application of the numerical criteria is as important as the actual criteria. Great Lakes environmental groups have learned from past experience that many different approaches are taken by the states concerning the use of water quality criteria to regulate pollution sources. The differences between the states in their approaches on these key issues can result in orders of magnitude differences in the amount of pollution a state allows from a similar discharger.

To implement fully the Great Lakes Water Quality Agreement in a uniform manner, the U.S. EPA must adopt legally enforceable requirements for state water quality standards that, at a minimum, address the following issues.

1. **Reducing mass loads of persistent toxic substances into the Great Lakes Ecosystem.** Present pollution control programs focus on controlling the concentration of toxic pollutants in the immediate vicinity of a source. This presumes that the pollutants are rapidly flushed from the receiving waters and are diluted to "safe" concentrations.

But the Great Lakes Ecosystem is a sink for toxic pollution. Persistent toxic pollutants discharged from many different sources at relatively low concentrations are not rapidly flushed and, even if diluted, bioaccumulate in fish, birds, wildlife, and people to unsafe levels.

Therefore, to protect the food chain (of which we are part), the total amount or mass loads into the Ecosystem of each persistent toxic pollutant of concern must be reduced according to an ambitious timetable. As a beginning point, the toxic pollutants of concern should include those on the Great Lakes Water Quality Board's "1986 Working List of Chemicals in the Great Lakes Basin."

2. **Immediately implementing a "Toxics Freeze" policy to prevent any net increases in the dumping of the most dangerous poisons.** As a first step toward reducing the mass loads of the most dangerous toxics, the existing rates of loading into the Ecosystem must immediately be frozen. A "Toxics Freeze" would immediately prohibit any net increase into the Great Lakes of the amount of any toxic on the GLWQB's 1986 list.

3. Assuring public participation in EPA review of state water quality standards. To ensure public involvement in the implementation of the new uniform water quality standards, the new requirements should require that each state produce a "Great Lakes Environmental Impact Statement" (GLEIS) to accompany its triennial WQS submission to EPA. The GLEIS would describe how the proposed WQS met the requirements of the Great Lakes regulations and of the GLWQA. EPA would encourage citizen input into its own review by issuing a public notice and allowing for comment on each state's submission, including the GLEIS, prior to determining whether to approve or disapprove the submission.

4. Applying uniform WQS to nonpoint pollution sources. The sources of problem Great Lakes pollutants are varied, including atmospheric transport and deposition, contaminated urban and rural runoff, combined sewer overflows, industrial and municipal wastewater discharges, contaminated groundwater discharges, and polluted sediments. If the uniform WQS are limited in application to traditional "point sources," they will not achieve the goals of the GLWQA. The uniform WQS must provide for applying the mass load reductions required to <u>all</u> categories of sources.

5. Protecting public health from combined exposure to toxic pollutants. Current approaches individually consider the impacts of each toxic pollutant contaminating the Ecosystem, ignoring the reality of the witch's brew of poisons we know to exist. The uniform water quality standards must include "default assumptions" for addressing the impacts of concurrent exposure to more than one toxicant to guide actions in the face of scientific uncertainty. An appropriate default assumption for combined exposure to more than one pollutant would provide that, unless there is scientific evidence to the contrary, it shall be assumed that the effects of more than one toxic pollutant are additive. Similar, and no less protective, mandatory default assumptions must be included in the uniform WQS to protect human health from carcinogens and non-carcinogens, and for protecting aquatic life and wildlife.

6. Prohibiting dilution as a substitute for pollution treatment. There are many different ways in which states have historically <u>applied</u> ambient WQS to allow the use of dilution as a substitution for treatment. This approach is unacceptable for persistent or bioaccumulative toxic pollutants and is directly contrary to the fundamental principle of the GLWQA. Dilution must be strictly limited in all applications by the uniform WQS. For example, with regard to persistent or bioaccumulative pollutants, the uniform WQS must:

* apply ambient WQS end-of-pipe to all new or increased discharges of Great Lakes toxics of concern (i.e. prohibit mixing zones);

* require the phased reduction and eventual elimination of existing mixing zones;

* prohibit "zones of initial dilution";

* require the use of stream flow calculations that reflect long-term low flows.

7. Innovative monitoring for pollutants. The compliance monitoring issues raised by analytical levels of detection are distinct from and unrelated to the environmental and human health basis for pollution controls. Where the application of the uniform WQS would result in pollution limits that are more stringent than current detection limits, so be it. Those limits must be required nonetheless, rather than allowing the level of detection as the pollution limit. Bio-uptake studies, internal wastestream monitoring, mass balance calculations, or other innovative techniques can be used to determine compliance.

A similar situation applies where the background concentration of a chemical is less than the level of detection. If there is any reason to suspect the presence of the toxic (e.g., upstream source or downstream consumption advisories for fish or waterfowl), the background concentration must be assumed to be at the level of detection, rather than at zero.

8. Requiring uniform risk levels. The EPA water quality criteria documents present a range of risk levels for carcinogens. These criteria cannot be uniformly applied by the Great Lakes states without agreement on a common "acceptable" risk level. Therefore, the uniform WQS will not be uniformly applied unless they include a requirement that all risk assessment-based source controls be based on the same risk level. Several states have adopted a risk level of one-in-one hundred thousand, which we believe is unacceptably high. In addition, the cancer risk posed by a given discharge is only one of the factors that must be considered when regulating polluters.

9. Assuming higher fish consumption rates. In order to provide consistent protection for public health from the risks of consuming contaminated Great Lakes fish, the Great Lakes regulations must include uniform assumptions concerning the amount of fish consumed by highly-exposed sub-populations (i.e. sport anglers, native people and subsistence fish-eaters). The 6.5 grams per day assumption currently incorporated into EPA's water quality criteria documents far underestimates the consumption patterns of Great Lakes fish-eaters. The uniform fish consumption rate included in the new requirements must accurately reflect the existing data that show much higher consumption patterns among sport anglers and many other people in the Great Lakes.

10. Protecting Wildlife. There is ample evidence that Great Lakes wildlife are suffering severely because toxic substances are contaminating the Ecosystem. The Great Lakes Water Quality Board recently reported that bald eagles nest less successfully near the Great Lakes than they do inland. Cormorants exhibit hideous birth defects attributable to toxics. River otter and mink are less prevalent near the river mouths of Great Lakes tributaries.

Yet, existing EPA guidance does not adequately address the chronic effects of toxic substances on terrestrial and avian wildlife. In particular, this guidance (and current state approaches) don't account for the peculiarities of wildlife exposure to the contaminated food chain. For example, fish is a higher proportion of the diet of certain bird species than it is for people; birds eat the whole fish, including the more highly-contaminated flesh and viscera; because they have a higher metabolic rate than people, birds can be more sensitive to toxins. For these and other reasons, the uniform WQS must include guidance for the development of wildlife protection criteria that considers the peculiarities of Great Lakes pollution.

11. Biomonitoring. The use of biomonitoring is an important component of and supplement to chemical-specific pollution limits. Where pollution limits or background concentrations of pollutants are less than analytical levels of detection, biomonitoring may be necessary to determine the presence of pollutants of concern or to determine compliance with pollution limits. Moreover, in appropriate situations, pollution limits may be expressed in terms of compliance with defined biomonitoring tests, including enzyme induction, fish/wildlife bio-uptake, etc.

With the emphasis on bioaccumulation of toxics in the Great Lakes Ecosystem, it is important that all states have the necessary authority to assess and control this phenomenon through the use of biomonitoring. Therefore, the uniform WQS must require that states have this authority and must prescribe the use of biomonitoring in specifically-defined situations.

12. Designating uses and classifying streams. There are areas of the Great Lakes, including those that affect National Parks, National Lakeshores, and Wildlife Refuges that warrant designation as Outstanding National Resource Waters (ONRW). The uniform WQS should include the joint proposal of these, and appropriate state-operated areas, for ONRW designation.

Also, the guidance should prescribe the permissible use classifications for the open waters of the Great Lakes and <u>all</u> tributaries. These designations should be coordinated with the

Great Lakes Fishery Commission and the state fisheries agencies to ensure that all waters capable of supporting anadramous fish are appropriately designated, both to protect the fish and to prevent bioaccumulation of toxics in these fish to the detriment of fish-eaters.

In addition, the designation of uses should be coordinated with the Remedial Action Plans being developed under the GLWQA to clean up the Great Lakes 42 Areas of Concern. The purpose of the Remedial Action Plans is to restore water quality conditions so that "beneficial uses" can be fully enjoyed in these areas. In these Areas of Concern, designated use under the Clean Water Act and beneficial uses under the Remedial Action Plans should be identical.

13. Antibacksliding. The uniform WQS should provide for implementation of the new antibacksliding section of the Clean Water Act in a fashion consistent with the GLWQA. Situations that may warrant backsliding in other regions of the U.S. should be precluded by the new Great Lakes regulations if they would delay achieving the "zero discharge" goal of the Agreement for persistent toxic pollutants. One approach would be to deny <u>any</u> backsliding for any Great Lakes source of the toxics listed in the 1986 GLWQB list.

14. Antidegradation. Many of the concepts discussed above, including the "Toxics Freeze," can be implemented through Great Lakes-specific antidegradation requirements. Therefore, we anticipate that this will be a major focus of the uniform WQS. Other antidegradation issues that must be addressed include: specification of a uniform "trigger" for application of the antidegradation analysis; procedures for applying antidegradation rules to sources other than traditional point sources; detailed requirements of the components of the antidegradation analysis of alternatives and of the economic/social justification for increased pollution, etc. The alternatives' analysis is one important way that the uniform WQS can incorporate toxics use reduction and pollution prevention concepts.

15. Reducing toxics use and preventing pollution. Everyone agrees that the best approach to control pollution is to address it at the source and prevent the creation of the pollutants in the first place. For example, EPA recently proposed a pollution prevention policy statement and created an office exclusively focussing on this approach. The uniform WQS should include an addendum to this policy statement that targets reducing the Great Lakes toxics of concern. Moreover, the uniform WQS should provide for the use of these techniques to reduce the input of specific toxics from specific sources, such as dioxins and furans from bleached kraft pulp mills.

Toxics use reduction and pollution prevention should be interwoven throughout the uniform WQS to identify ways in which the Great Lakes toxics of concern can be eliminated at the source. Also, the uniform WQS effort should include a permanent process to update this feature as additional information and opportunities for source reduction become available.

16. Variances. The uniform WQS should severely restrict the opportunity for any variances from water-quality based limits for discharges of persistent toxics into the Great Lakes. The presumption should be that no such variances will be granted. However, where an applicant seeks a temporary variance, the process to be followed and the criteria for review must be specified in the uniform WQS.

The process for granting such a variance must include Great Lakes-wide public notice by EPA and opportunities for public comment, a demonstration by the applicant that toxics use reduction or pollution prevention techniques cannot obviate the need for a variance, and a determination that granting the variance will not result in any net increase in the amount of the toxic reaching the Great Lakes. There should be a central registry of all variances in effect in the Great Lakes watershed and an annual report on the compliance status. Variances must be limited in duration and must be subject to periodic reconsideration, with all of the public participation processes repeated.

17. Remedial Action Plans. The uniform WQS should provide for the timely implementation of all Remedial Action Plans pursuant to Clean Water Act authorities. Most important, the new uniform WQS must include a provision that requires the implementation of the RAPs pursuant to the authority of Clean Water Act Section 304(l). Also, EPA's regulations concerning funding and review of state water quality programs must be revised through this process to provide for the withholding of federal monies from states that are not implementing RAPs according to approved timetables.

Also, the uniform WQS must require that states have adequate legal authority to require implementation of RAPs, or components thereof, by the parties responsible for the original contamination. No RAP should be approved without such a demonstration by the responsible state.

18. Contaminated Sediments. The uniform WQS process must require that all states apply their standards to dredge and fill activities in a consistent manner to prevent the recycling of in-place pollutants. It should also require a central Great Lakes registry of all applications for CWA Section 401 certifications in the Areas of Concern. Finally, the uniform WQS process must provide for the use of the new standards, guidance, and procedures to assess and define clean-up standards for

contaminated sediments. This may include the development of new methods for assessing the manner in which sediments release contaminants back to the water column.

The Uniform Great Lakes Numerical Criteria Should Form the Basis of the U.S. Position For Negotiations With Canada.

The set of numerical criteria for Great Lakes toxicants and the supporting technical information would form the U.S. position for negotiating with Canada the adoption of Specific Objectives under Annex 1 of the GLWQA. If the bilateral negotiations result in any weaker numbers, the original, more stringent numbers should remain enforceable as U.S. criteria. If the bilateral negotiations result in any more stringent numbers, then the U.S. should upgrade those criteria.

If this procedure is followed, the result will be a set of U.S. Great Lakes water quality criteria that are legally enforceable and that are consistent with the Specific Objectives of the GLWQA. If Canada similarly adopts the GLWQA Specific Objectives as legally enforceable criteria domestically, and develops water quality-based programs to apply the criteria, the Great Lakes will be protected by one uniform set of minimum water quality criteria.

The Development of the Great Lakes Regulations and Uniform Water Quality Standards Must Proceed According to a Strict Timetable For EPA Action.

It is crucial that all parties involved in the development of Great Lakes regulations agree to proceed according to a strict timetable. EPA, in its proposed process, stated that the Great Lakes guidance will be completed in time for the next round of triennial revisions to state WQS, which will begin in 1991. For the rules to be completed in time for the states to be prepared for the new requirements, they should be completed and promulgated in the federal register approximately one year from now, by June 1, 1990.

Current Efforts to Update State Water Quality Standards Must Not Be Delayed Pending Completion of the Great Lakes Regulations

Most of the Great Lakes states are currently involved in revising their WQS. The States are required by the 1987 Water Quality Act to promulgate numerical water quality standards by February 1990. This process must in no way be used as an excuse for not meeting this statutory deadline.

IV.

CONCLUSION

The current regulatory system for protecting and restoring Great Lakes water quality has failed. Despite some progress, the Great Lakes are still polluted with toxic chemicals. Fish can't safely be eaten and birds either can't reproduce or are producing young with twisted beaks and other hideous deformities. There is growing evidence that human health is seriously threatened.

The GLWQA offers an inspiring vision of how the Lakes could be and should be. Yet, our governments have failed to honor the promises they made to the people of the U.S. and Canada when the GLWQA was signed.

We are calling on the U.S. EPA and the Great Lakes States to immediately launch a four-part program that will change that way the Federal and State Governments regulate toxic pollution. The key elements of this new program are:

1. **Uniform water quality standards** and pollution control requirements for toxic pollutants to end competition between the States for heavy-polluting industries, such as paper mills;

2. **A "Toxics Freeze"** prohibiting any increased dumping of the most dangerous toxic chemicals into the air, water, or onto land within the Great Lakes Ecosystem;

3. **A timetable to reduce dumping** of these chemicals from all sources so that serious progress can be made by the year 2000 toward the goal of **Zero Discharge**, and

4. **A comprehensive pollution prevention strategy** to avoid the creation of toxic wastes.

EPA has proposed developing uniform requirements for the Great Lakes States. While we support this initiative in concept, we have little confidence that their proposal will succeed unless it is changed to ensure that:

* **The public is adequately represented in all phases of the development process;**

* **The final product is legally enforceable;**

* **The process addresses several specific key Great Lakes issues in a manner consistent with the principles, General Objectives, Specific Objectives and Annexes to the Great Lakes Water Quality Agreement;**

* **The process proceeds along an aggressive timetable to be completed by June 1, 1990, and**

* **Current efforts to update state water quality standards are not delayed pending completion of the Great Lakes rules.**

The Great Lakes environmental groups view this as a unique opportunity for the U.S and the Great Lakes States to take action to honor the promises made in the GLWQA. Their actions in the coming 12 months will be a key test of their resolve.

This report spells out how the governments can take the greatest advantage of the opportunity before them. We are committed to working with the governments in this process to ensure that this vision is fulfilled. The reward is restoring the Lakes to their once-Great state.

STATEMENT OF MR. JAMES C. GRITMAN, REGIONAL DIRECTOR, REGION 3, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF INTERIOR, BEFORE THE HOUSE PUBLIC WORKS AND TRANSPORTATION COMMITTEE, SUBCOMMITTEE ON WATER RESOURCES, CONCERNING GREAT LAKES WATER QUALITY ISSUES

MAY 2, 1990

MR. CHAIRMAN, I AM JAMES GRITMAN, REGIONAL DIRECTOR OF THE U.S. FISH AND WILDLIFE SERVICE, NORTH CENTRAL REGION. I APPRECIATE THE OPPORTUNITY TO BE HERE TODAY TO DISCUSS THE IMPACTS OF WATER QUALITY ON FISH AND WILDLIFE AND MY AGENCY'S EFFORTS IN IMPLEMENTING THE GREAT LAKES WATER QUALITY AGREEMENT. OTHER SERVICE EMPLOYEES HAVE TESTIFIED PREVIOUSLY BEFORE THIS COMMITTEE ON SOME OF OUR EFFORTS TO ASSESS THE EFFECTS OF CONTAMINATION ON FISH AND WILDLIFE IN THE GREAT LAKES BASIN. I AM PROVIDING THEIR STATEMENTS FOR THE RECORD AND REFER YOU TO THEM FOR SPECIFIC DETAILS (MR. TIMOTHY KUBIAK, APRIL 14, 1988, AND DR. MICHAEL MAC, JUNE 21, 1989).

WATER QUALITY EFFECTS ON FISH AND WILDLIFE

THE SERVICE HAS BEEN CONCERNED WITH THE EFFECT OF GREAT LAKES WATER QUALITY ON FISH AND WILDLIFE FOR OVER THREE DECADES, EVER SINCE THE DISCOVERY OF EGG SHELL THINNING IN FISH-EATING BIRDS, A PROBLEM ASSOCIATED WITH DDT. SINCE THAT TIME WE HAVE BEEN INVESTIGATING THE EFFECTS OF CONTAMINATION ON SUCH SERVICE TRUST RESOURCES AS BALD EAGLES AND LAKE TROUT. INVESTIGATIONS HAVE BECOME ENORMOUSLY COMPLEX BECAUSE OF THE PROLIFERATION OF CHEMICAL USE IN EVERY ASPECT OF MODERN-DAY LIFE. THE SERVICE HAS IDENTIFIED OVER 400 CHEMICALS IN LAKE TROUT FLESH FROM THE GREAT LAKES. THESE CHEMICALS IN THE FISH ARE THE RESULT OF DIRECT AND INDIRECT HUMAN INFLUENCE ON THE ENVIRONMENT.

WHILE IT IS TRUE THAT CONCENTRATIONS OF CONTAMINANTS HAVE DECLINED SINCE THE EARLY 1970'S, THE DOWNWARD TREND HAS LEVELED OUT AT A HIGH LEVEL. INDICATIONS OF THIS ARE THAT HATCHERY PLANTED LAKE TROUT ARE STILL NOT REPRODUCING NATURALLY IN LAKE MICHIGAN. I SHOULD STATE, HOWEVER, THAT NATURAL REPRODUCTION OCCURS IN LAKE SUPERIOR AND LIMITED NATURAL REPRODUCTION OCCURS IN LAKE HURON AND LAKE ONTARIO. BALD EAGLES THAT NEST ALONG OR NEAR THE GREAT LAKES SHORELINES HAVE POOR REPRODUCTION AND HIGH CONTAMINANT CONCENTRATIONS COMPARED TO THEIR INLAND COUNTERPARTS.

MINK AND OTTER, SPECIES PARTICULARLY SENSITIVE TO PCB POISONING, ARE ABSENT FROM LARGE PORTIONS OF THE GREAT LAKES SHORELINE AND TRIBUTARIES WITH ANADROMOUS FISH RUNS. COLONIAL-NESTING, FISH-EATING BIRDS IN THE GREAT LAKES HAVE VASTLY HIGHER RATES OF DEFORMITIES THAN THEIR COUSINS OUTSIDE THE GREAT LAKES BASIN. WATERFOWL IN CERTAIN AREAS OF THE GREAT LAKES ARE CARRYING CONTAMINANT LEVELS ABOVE HEALTH ADVISORY GUIDELINES FOR POULTRY. SOME STATES, SUCH AS WISCONSIN AND NEW YORK, HAVE PLACED CONSUMPTION ADVISORIES ON THEM. FISH CONSUMPTION ADVISORIES OCCUR IN ALL OF THE STATES BORDERING THE GREAT LAKES. TUMOR RATES IN FISH ARE HIGHER IN AREAS OF CONCERN IDENTIFIED WITHIN THE AGREEMENT THAN IN OTHER AREAS OF THE GREAT LAKES.

IMPLEMENTATION OF THE WATER QUALITY AGREEMENT

THE SERVICE HAS BEEN INVOLVED IN IMPLEMENTING THE GREAT LAKES WATER QUALITY AGREEMENT SINCE ITS INCEPTION IN 1972. SERVICE OFFICIALS HAVE SERVED ON VARIOUS COMMITTEES AND SUBCOMMITTEES TO FURTHER THE GOALS OF THE AGREEMENT AND WE PARTICIPATED IN ITS REVISION IN 1978 AND IN THE DESIGN OF AMENDMENTS IN 1987. OUR DIRECT ROLE LARGELY HAS BEEN ONE OF COORDINATING AND ADVISING THE

INTERNATIONAL JOINT COMMISSION AND U.S. REGULATORY AGENCIES. AN EXCEPTION IS THAT WE HAVE ACTUALLY COLLECTED FISH AS PART OF THE OPEN LAKE MONITORING PROGRAM FOR CONTAMINANTS IN FISH TISSUE.

ANOTHER ACTIVITY IN WHICH WE PARTICIPATE INCLUDES REVIEW OF REMEDIAL ACTION PLANS PRODUCED BY THE STATES. IN SOME INSTANCES, WE DRAFTED CERTAIN SECTIONS OF THE PLANS PERTAINING TO FISH AND WILDLIFE. THE SERVICE HAS APPROXIMATELY TEN PEOPLE WORKING PART-TIME WITH THE INTERNATIONAL JOINT COMMISSION COMMITTEES AND THE UNITED STATES COMMITTEES IMPLEMENTING THE AGREEMENT. CERTAIN OF OUR ROUTINE ACTIVITIES UNDER OTHER AUTHORITIES ALSO BENEFIT SOME OF THE AGREEMENT'S GOALS AND OBJECTIVES. THESE INCLUDE REVIEW AND COMMENT ON PERMIT APPLICATIONS TO FILL WETLANDS AS PART OF THE SERVICE'S RESPONSIBILITIES UNDER SECTION 404 OF THE CLEAN WATER ACT, WETLAND RESTORATIONS, LAND ACQUISITION, A SMALL CONTAMINANTS ASSESSMENT ACTIVITY, AND LAKE TROUT RESTORATION IN THE GREAT LAKES BASIN WHICH IS A NATIONAL PRIORITY.

OPPORTUNITIES YET TO BE REALIZED

THERE ARE FOUR MAIN AREAS TO WHICH THE SERVICE COULD SIGNIFICANTLY CONTRIBUTE AND THEREBY AID IN ACHIEVING AGREEMENT GOALS AND OBJECTIVES: (1) ASSISTING EPA AND STATES BY DEVELOPING WATER QUALITY CRITERIA FOR THE PROTECTION OF FISH AND WILDLIFE, (2) BIOASSESSMENT AND BIOMONITORING, (3) EXPANDED PARTICIPATION IN REMEDIAL ACTION PLAN PREPARATION AND IMPLEMENTATION, AND (4) CLEANUP OF AREAS OF CONCERN.

THE FIRST AREA HAS TO DO WITH DEVELOPMENT OF A FRAMEWORK TO DERIVE WATER QUALITY STANDARDS THAT TAKE INTO ACCOUNT THE EFFECTS OF SUBSTANCES THAT BIOACCUMULATE. THESE ARE PARTICULARLY TROUBLESOME FOR PREDATORS THAT FEED AT THE TOP OF THE FOODCHAIN.

THE SECOND AREA HAS TO DO WITH OUR STATUTORY RESPONSIBILITY TO ACT AS STEWARDS FOR CERTAIN RESOURCES SUCH AS MIGRATORY BIRDS AND SOME FISH. ECOSYSTEM HEALTH INDICATORS ARE CONTAINED WITHIN THE AGREEMENT. ONE OF THESE IS THE LAKE TROUT, FOR WHICH AN INTERNATIONAL JOINT COMMISSION WORKGROUP HAS IDENTIFIED NEEDED MONITORING. ANOTHER BEING PROPOSED IS THE BALD EAGLE. BOTH ARE OUR TRUST RESOURCES. THE SERVICE RECOGNIZES THE NEED TO ASSESS THE HEALTH OF THESE INDICATORS AND THEIR HABITATS. WE ARE PROVIDING A PIECE OF THAT ASSESSMENT BY ANALYZING FISH TISSUE FOR THE OPEN LAKES MONITORING PROGRAM.

THE THIRD AREA IS THAT OF PROVIDING OUR OPERATIONAL CONTAMINANTS EXPERTISE TO THE STATES FOR DEVELOPING REMEDIAL ACTION PLANS. THIS WOULD CONSIST OF SETTING FISH AND WILDLIFE GOALS FOR THE PLANS WITH THE STATES AND PARTICIPATING THROUGHOUT THE PROBLEM DESCRIPTION, REMEDIAL ACTION IMPLEMENTATION, AND MONITORING STAGES.

THE FOURTH AREA IS THAT OF NATURAL RESOURCE DAMAGE ASSESSMENTS. THE DEPARTMENT OF THE INTERIOR AND THE STATES HAVE TRUST RESPONSIBILITY FOR NATURAL RESOURCES. UNDER SUPERFUND LEGISLATION AND THE NATIONAL CONTINGENCY PLAN, TRUSTEES OF NATURAL RESOURCES CAN PERFORM DAMAGE ASSESSMENTS AND REQUIRE RESTORATION OF THOSE NATURAL RESOURCES WHICH ARE FOUND TO BE DAMAGED. THESE REGULATIONS SHOULD BE USED FOR THE AREAS OF CONCERN IN THE GREAT LAKES TO THE EXTENT THAT THEY APPLY.

THE SUCCESS OF THE INTERNATIONAL COOPERATIVE EFFORT TO ACHIEVE THE GOALS AND OBJECTIVES OF THE GREAT LAKES WATER QUALITY AGREEMENT CAN BEST BE DEMONSTRATED THROUGH THE HEALTH OF THE FISH AND WILDLIFE RESOURCES. WHEN WE HAVE ELIMINATED FISH AND WILDLIFE

HEALTH ADVISORIES, WHEN WE HAVE VIABLE STOCKS OF NATIVE FISH IN THE GREAT LAKES, WHEN WE HAVE BALD EAGLES SUCCESSFULLY REPRODUCING AND INHABITING THE SHORELINES, WHEN MINK AND OTTER RE-INHABIT SHORELINE AREAS THROUGHOUT THE BASIN, AND WHEN WE HAVE ELIMINATED CHEMICALLY CAUSED DEFORMITIES IN OUR FISH AND WILDLIFE -- THEN WE WILL HAVE ACHIEVED THE GOALS AND OBJECTIVES OF THE AGREEMENT.

MR. CHAIRMAN, THAT CONCLUDES MY STATEMENT. I WANT TO THANK YOU VERY MUCH FOR THE OPPORTUNITY TO TESTIFY TODAY, AND I WILL BE PLEASED TO ANSWER ANY QUESTIONS YOU MAY HAVE.

COMPLETE STATEMENT

OF J. D. SNYDER, DIRECTOR

OFFICE OF THE GREAT LAKES

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

BEFORE THE HOUSE SUBCOMMITTEE ON WATER RESOURCES

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

May 2, 1990

Introduction

Thank you for this opportunity to comment on legislation before you entitled the "Great Lakes Water Quality Improvement Act of 1990," regarding implementation of key provisions of the Canada-U.S. Great Lakes Water Quality Agreement of 1978. I commend this Subcommittee and the Chair for your attention to the critical water quality problems of the Great Lakes. The Great Lakes Basin is home to 15 percent of the U.S. population and supplies drinking water to nearly 24 million people. The Great Lakes define our economy, our climate, our boundaries, our culture--they are the reason we have settled here. Their importance to Michigan, the nation, and the world cannot be overstated.

Background

The Great Lakes Water Quality Agreement is an important binational agreement. It symbolizes shared regional concern and cooperation on Great Lakes water quality problems. The Agreement serves as a regional focal point for water quality discussions between the federal governments.

The Agreement is generally considered one of the prime motivators for government efforts to control conventional point source pollutants discharged to the Great Lakes such as phosphorous, nutrients, and suspended solids. It also establishes a framework to address toxics and nonpoint source pollution and many other

water quality problems. The responsibility for implementing the Agreement rests with the respective federal governments, in consultation with the state and provincial governments. While the recommendations in the Water Quality Agreement have the force of moral obligations on the federal governments as parties to the Agreement, needed resources and legislative authority are not necessarily available to implement the recommendations.

Responsibility for implementing the Agreement rests with the respective federal governments, in consultation with the state and provincial governments. While the recommendations in the Water Quality Agreement have the force of moral obligations on the federal governments as parties to the Agreement, needed resources and legislative authority are not necessarily available to implement the recommendations. To fulfill the demands of the Agreement, it is imperative to ensure that the federal government provides adequate resources to carry out the responsibilities under the Agreement. H.R. 4323 provides an excellent framework to implement the provisions of the Agreement.

While some progress has been made, as in the case of the EPA's Water Quality Initiative to establish unified Basin-wide water quality standards. But federal efforts to meet the responsibilities under the current Agreement must be significantly strengthened and accelerated. Standards and criteria need to be established for many toxic chemicals, especially air pollutants. Research,

monitoring, and surveillance efforts need to be expanded and coordinated with ongoing state efforts. While the Agreement emphasizes the use of an ecosystem approach, scientific understanding of, for example, the cross-media transport of pollutants (i.e., from air to land to water and back to air) is weak. Furthermore, current institutional arrangements hinder ecosystem approaches because land, water, and air problems are addressed by different program units that have few or no integrative mechanisms.

With contamination trends down but leveling off, we need to critically assess future directions. We have concentrated our efforts on point source discharge control and we have made substantial--even dramatic--progress. We must continue and even expand this work by applying existing technology and requiring new technologies as they emerge. But if we are to reduce toxic substances in the Great Lakes ecosystem, there are other critical areas that we must address.

Regulations and program initiatives must be pursued so that we can learn to control other sources and pathways such as atmospheric emissions; groundwater migration; runoff of pesticides and other materials from farm fields and urban areas; stormwater; combined sewer overflows; and releases from contaminated sediments. In some cases we may have to pursue additional outright bans on the production and use of harmful substances.

Progress Made by Michigan and the Other Great Lakes States

Michigan has long been a regional leader in toxic control. In 1969, Michigan was the first state in the nation to ban DDT--two years before the federal government.

Michigan took a lead role in developing the eight-state Great Lakes Toxic Substances Control Agreement of 1986. This agreement was a critical first step in voluntary regional cooperation to reduce toxic substances in the Great Lakes ecosystem, and Michigan took a leading role in implementing one of the Agreement initiatives to establish the Great Lakes Protection Fund. The Fund, a first in the nation, is a permanent $100 million endowment for Great Lakes toxic substances research and clean-up demonstration projects.

Michigan has completed--with full public involvement--and submitted nine remedial action plans. Michigan has five more to complete: one is tied up in litigation while the other four are joint plans, three being developed with Ontario and one with Wisconsin.

Last month, Governor James J. Blanchard issued an Executive Order on Great Lakes Protection taking strong action by directing all state agencies with pollution control responsibilities to manage those programs in order to assure that they are consistent with the goal of virtual elimination of the discharge of persistent toxic

pollutants in toxic amounts to the Great Lakes from Michigan sources.

Fulfilling the Federal Obligation

The federal government should fulfill its obligations under the current Agreement in several important ways. First, the EPA needs to set technically sound national standards and criteria for pollutants and ensure adequate funding of programs delegated to the states for developing remedial action plans and lakewide management plans. Variation between the states' pollution control programs allows companies to shop around for the most pollution-friendly jurisdiction, and neglects the fact that the Lakes are an interrelated system.

The EPA has begun this effort through its Water Quality Initiative to establish unified Basin-wide water quality standards. The requirements of H.R. 4323 for specific numerical water quality criteria to protect human health and the biological integrity of the Great Lakes is an important step in assuring needed action. And this criteria should be established as soon as feasible to provide Basin-wide uniformity of water quality standards. Regional guidance regarding the criteria, including the control of point and nonpoint sources, antidegradation, and pollution prevention is also essential.

The proposed legislation should also expand the federal guidance to address important issues like treatment technologies and analytical detection levels. It is essential that the EPA continually provide updated guidance regarding Best Available Technology (BAT) and categorical pretreatment requirements. To date, the EPA's development and updating of this guidance has been slower than necessary to make satisfactory progress in meeting the requirements of the Agreement.

The EPA must move much more rapidly to implement the requirements of the Agreement as revised in 1987. The general approach has been to develop plans or strategies to implement the specific requirements of the Agreement. To date, none of these plans or strategies have been finalized. The combination of the extensive requirements and the lack of clearly established priorities has led to a current situation which leaves the impression that little is being accomplished.

As proposed in H.R. 4323, the requirement for submittal of completed Stage 1 plans for all areas by June 1, 1992 and Stage 2 by June 1, 1994 can only be met with increased federal commitment and close coordination with state agencies developing those plans. Federal and state cooperation is needed to ensure that each plan addresses the specific water quality problems of each area of concern in order to restore the beneficial uses of those water bodies. Also, it is imperative that the EPA develop a responsive

process, including full state participation, for determining the adequacy of submitted plans to ensure a coordinated, equitable review of all plans.

Regional guidance regarding the criteria, including the control of point and nonpoint sources, anti-degradation and pollution prevention is essential. You should consider penalty provisions under Section 5(f) for a state's failure to adopt EPA promulgated standards, rather than requiring the EPA to promulgated standards in lieu of state action. For instance, if the EPA were to promulgate standards for the State of Michigan, the Department of Natural Resources could not enforce those standards without state legislation to provide that authority. Restrictions or reductions in federal funding of water quality programs may be an appropriate penalty.

The Agreement states that the "Parties" shall cooperate with the Great Lakes states, in the development and implementation of the remedial action plans. The proposed legislation would in effect place the responsibility for development of the plans on the states. We suggest that the legislation provide authority for the EPA to "delegate" responsibility for activities under the Agreement to the states. The EPA and the states should negotiate memoranda of understanding to establish those respective roles and responsibilities, including federal funding to be provided for completion of the activities, consistent with effective

implementation of the Agreement.

It is important to remember that the International Joint Commission (IJC) serves an advisory role to the federal governments in the process of implementing the Agreement. The IJC acts as the conscience for the process. The IJC's advisory role should be preserved as such, providing evaluation of the efforts by the Parties to implement the Agreement. But the IJC currently does not, and we believe should not, have independent authority to make findings regarding the sufficiency of RAPS. Federal governments, as the Parties to the Agreement, are responsible for implementing the Agreement. And indeed, Section 118 of the Clean Water Act charges the EPA with carrying out the responsibilities of the United States under the Agreements.

If there are sufficient deficiencies in previously submitted plans, the EPA should provide the necessary resources to correct these deficiencies. The three-stage schedule is appropriate for the 42 Areas of Concern designated in 1985. However, extended time frames should be required if additional areas of concern are designated.

As proposed in the legislation, an aggressive schedule must be initiated to ensure steady progress in the development of lakewide management plans. Progress must be made in defining the scope, nature and extent of the Plans. The EPA, in full consultation with the states, needs to provide clear guidance about what constitutes

a Plan and provide funds to states for responsibilities accepted by the states.

The proposed legislation acknowledges these needs in requesting appropriation of funds. However, the areas identified for funding, such as "demonstration projects on the feasibility of controlling and removing toxic pollutants" nutrient monitoring, water quality criteria development and NOAA funding should be further defined. Michigan and other Great Lakes states, would be willing to provide assistance in this process. The legislation should require the development of a process, with full state involvement, to establish mechanisms to ensure that funding is used to the greatest possible benefit.

Increased financial resources must accompany increased responsibilities. The States are willing to accept the additional responsibility but must be provided the funding necessary to carry out the additional responsibilities.

Again, thank you for the opportunity to comment on H.R. 4323.

STATEMENT TO
WATER RESOURCES SUBCOMMITTEE
U.S. CONGRESS
BY
PHILIP WELLER
EXECUTIVE DIRECTOR
GREAT LAKES UNITED
MAY 2, 1990

Good morning. My name is Philip E. Weller and I am Executive Director of Great Lakes United, a binational coalition of over 180 groups from throughout the Great Lakes - St. Lawrence River dedicated to the conservation and protection of the Great Lakes - St. Lawrence River ecosystem. Our membership, which includes environmental organizations, community groups, unions, small businesses, academic and scientific groups and governmental bodies, extends from Duluth at the western end of the basin to Quebec City along the St. Lawrence River outflow of the system. This statement is made on behalf of this community of organizations from throughout the Great Lakes region who are deeply concerned about the condition of the Great Lakes ecosystem.

I would like to thank Chairman Nowak and the members of the subcommittee for the opportunity to testify here today. During this presentation, I would like to convey three essential messages. The first of these messages is that there is an urgent need for accelerated and expanded cleanup, remediation and pollution prevention in the Great Lakes region. Secondly, the Great Lakes Water Quality Agreement, originally signed by Canada and the United States in 1972, and revised in 1978 and again in 1987, is an effective blueprint and framework for action to address the problems of the Great Lakes ecosystem. And, third the citizenry of the Great Lakes region feels betrayed by the failure of the governments of Canada and the United States to fully uphold the commitments made in the Great Lakes Water Quality Agreement.

I would like to address each of these issues in turn. In particular I would like to emphasize the potential of the program commitments made in the Great Lakes Water Quality Agreement and specifically, the need for stronger commitments to develop Remedial Action Plans (RAPs) and Lake Wide Management Plans. These two programs offer tremendous potential to undo and prevent some of the damage that has been done to the Great Lakes. The failure to undertake the necessary action to implement these programs is a major stumbling block to effective cleanup of the Great Lakes. We are very pleased with the initiative to create the Great Lakes Water Quality Improvement Act of 1990 and believe that this legislation will be very important in increasing the fulfilment of the promise contained within the Great Lakes Water Quality Agreement.

As I'm sure you are well aware, the Great Lakes represent an amazing 18 percent of the world's surface fresh water. That freshwater resource is unparalleled in magnitude anywhere in the world. But the quality of the Great Lakes waters and landscape have been greatly diminished. They have been diminished through destruction of habitat, introduction of exotic species and the continued input of pollution. The sources of that pollution include slowly leaking landfills, nonpoint runoff, atmospheric pollution, and direct discharges from industry and municipalities.

The Great Lakes are a special resource and their attributes of size and depth make them especially vulnerable to inputs of toxic chemicals. Pollutants once they are in the lakes take an extremely long time to leave the system. If for example all sources of the toxic organic pollutants were stopped it would take about 100 years for ninety percent of these pollutants to be eliminated from Lake Michigan and over five hundred years for the same percentage to be eliminated from Lake Superior.

Synthetic organic pollutants have been entering the Great Lakes, as well as other regions of the industrial world, since they began being produced in large quantities after the second world war. Within the lakes these pollutants have accumulated in bottom sediments and biological tissue of fish and other wildlife. The twisted beaks of cormorants and tumors in fish that exist in certain areas of the lakes are graphic evidence of the detrimental impact of these chemicals on wildlife and humans.

The Great Lakes are in many respects a sentinel of the dangers of pollution. In the late 1960s it was the eutrophication of Lake Erie that first provided graphic illustration of the problems of sewage wastes in North America. Now in the 1990s the Great Lakes are once again warning us of the effects of pollution - this time the pollution of the lakes through toxic chemicals.

A message about the significance of the threat that exists and the need for additional action was recently issued by scientists from the Conservation Foundation and Institute for Research on Public Policy in Canada. They concluded:

> Despite regulatory vigilance to rein in polluters and significant government efforts over the last two decades, the environment of the Great Lakes Basin is still in trouble. Dramatic evidence remains that the Great Lakes are imperiled by continuing habitat destruction and the long-term accumulation of toxic chemicals, which are increasingly pervasive throughout the ecosystem. (CF and IRPP, Great Lakes, Great Legacy?, page xix, Washington, 1989)

Warnings about the ill health of the Great Lakes ecosystem have also come in recent weeks from the International Joint Commission. They wrote in their most recent report to the governments:

> Despite the significance of the Great Lakes and our collective rhetoric to restore and enhance them, we as a society continue to mortgage their future by poisoning, suffocating and otherwise threatening them... (IJC, Fifth Biennial Report, p.6)

Significant about the report was the conclusion of the Commission "that there is a threat to the health of our children emanating from our exposure to persistent toxic substances, even at very low ambient levels."

These reports have added legitimacy to what individuals and scientists from throughout the Great Lakes basin have been observing - that the Great Lakes are being grossly damaged by pollution and other factors, and that the damage is unacceptable and avoidable.

While progress has been made in addressing conventional pollutant problems and reducing the loads of some chemicals such as DDT this progress has not been sufficient to protect human health and restore environmental quality. We continue to expose humans and animals to unacceptable concentrations of toxic contaminants. It is therefore imperative that we adopt uniform water quality standards to protect fish, wildlife and humans. We are very pleased that some progress has been made in developing uniform criteria and believe that the Great Lakes Water Quality Improvement Act will strengthen that effort.

The GLWQA of 1987 is an effective blueprint for addressing the existing problems. It calls for a goal of zero discharge of persistent toxic substances - a goal that is both practical and possible. The IJC wrote in its most recent report, "The technology, either exists - or can, with very few exceptions, be developed at some cost - to replace (or control in the interim) the use of persistent toxic substances." (IJC, page 17)

The evidence of damage to the Great Lakes is not new. The governments of Canada and the United States recognized the problems of the Great Lakes as early as the late 1960s and eventually signed the GLWQA in 1972 as a way of addressing the problems.

Unfortunately the two governments have failed to uphold the commitments made in the Great Lakes Water Quality Agreement and enshrinement of this agreement in law appears necessary. The renegotiation of the Great Lakes Water Quality Agreement in 1987

offered hope to the residents of the basin that the problems could be resolved. In the two and a half years since the most recent agreement was signed, citizens have, however, become increasingly frustrated with the snails pace of progress in protecting and rehabilitating the Great Lakes.

Two of the program commitments of the governments which offer the greatest hope and potential for cleaning up and protecting the Great Lakes are the Remedial Action Plans and the Lakewide Management Plans.

Background on the 42 Areas of Concern

Since the mid-1970's, there has been recognition that specific areas in the Great Lakes, such as harbors, bays, river mouths, and the connecting channels had severe water quality problems. The degraded conditions prevent the public from enjoying these areas. In many of these areas, fish are contaminated and advisories against consumption are in effect. Swimming in these Areas of Concern is often unsafe.

The IJC's Water Quality Board has listed and reported on areas of concern, originally called "problem areas", since the Board's 1973 report. For 12 years, the efforts to address problems in Areas of Concern were very limited and involved minimal coordination.

In the early 1980's the Water Quality Board recognized that little was being accomplished to actually clean up the Areas of Concern and a new approach was needed. In its 1985 report, the Board formally recommended that a Remedial Action Plan process be adopted.

In their 1987 revisions to the Great Lakes Water Quality Agreement, the governments of Canada and the United States formally agreed to develop Remedial Action Plans. The public lauded this commitment as a forward-looking, positive approach to the problems in the Areas of Concern. Citizens in each of the 42 Areas of Concern proceeded to put considerable energy into the RAP process and to view it as a source of hope for correcting the problems.

Citizen Involvement in Remedial Action Plans

The hope of many residents of the Great Lakes' most contaminated areas is that the RAP process can focus people's ideas, energies and money to regenerate communities whose natural features have been devastated by human abuse.
RAPs have tremendous potential. However, achieving that potential will only be realized through the determination, diligence, and involvement of citizens in the affected communities. Citizens have a fundamental right to shape their

future. They must provide the vision and the commitment for the restoration of their community.

Affected communities in Areas of Concern must work as equal partners with the agencies responsible for developing RAPs. To ensure this partnership occurs, GLU advocated a strong public role in all Great Lakes programs during the 1987 renegotiations of the Great Lakes Water Quality Agreement. As a result, Annex II of the Agreement now says that the public must be involved in RAPs as well as other programs outlined in the Agreement.

Three years after the original planned completion dates for the RAPs, only one RAP has actually been drawn up -- Green Bay, Wisconsin. In the other areas, first stage RAPs (the descriptions of the problem) have not yet been completed to the satisfaction of either the IJC or the public. In most areas, work hasn't even begun on what the remedial actions would be. These delays have primarily been a result of the failure of the governments to devote adequate resources to the planning process.

Great Lakes United therefore strongly supports the adoption of concrete timelines for RAP development as required by the Great Lakes Water Quality Improvement Act. These programs need additional commitment of effort and resources. The adoption of timelines and authorization of funding are essential elements to help RAPs realize their potential.

Citizens are devoting considerable time, energy and money to the RAP process and want to ensure that they are not wasting their efforts.

Citizens concerns for RAPs focus on two questions:
What should a RAP contain? and
How can we ensure that the RAP is implemented?

In February, Great Lakes citizen leaders were brought by Great Lakes United to Stella Niagara, New York, to develop answers to these questions. Out of the workgroup sessions a series of recommendations were developed to provide guidance to citizens and governments in creating and developing RAPs. One of the important recommendations was the need for legislative support for RAPs.

Six key elements were identified as necessary for a successful RAP. They are that:

- the RAP must embody community vision and support
- they must incorporate the ecosystem approach
- they must achieve zero discharge
- they must cleanup contaminated sediments
- they must establish land use policies for the Area of Concern

- and they must create and restore wild areas and habitat.

It is clear from the workshop that the public is determined to make the RAPs work -- to not give up despite considerable frustration. It is Great Lakes United's hope that these efforts will be fully rewarded by the restoration of a clean and healthy Great Lakes ecosystem.

Lakewide Management Plans

One of the other central commitments made by the two federal governments in 1987 when they renegotiated the GLWQA was a pledge to develop Lakewide Management Plans. These plans were intended to be a lakewide RAP. They are to be focused on identifying additional remedial measures that are needed to achieve the reduction of chemical loadings and to eliminate the contribution to impairment of beneficial uses from critical pollutants. Important about the Plans is that they are to address the contributions of toxics from all media.

This includes air, land runoff, direct discharges, and contaminated sediments. The problem of sediments remains particularly acute in many of the areas of the Great Lakes and requires additional attention. An important need is the development of technology to decontaminate sediments. The extension of funding for the sediment demonstration projects as proposed in the Great Lakes Water Quality Improvement Act will be a step towards addressing this acute need.

As has been the case with Remedial Action Plans, the progress of the governments to date in developing Lakewide Management Plans has been limited. Only one plan, that for Lake Ontario, has actually begun.

It is the belief of Great Lakes United that the Lakewide Management Plans need legislative support and that the EPA needs additional resources to undertake these efforts. We support the establishment of timelines for all the Lakewide Management Plans and express our support for expanded funding to the EPA to carry out this important activity. The Lakewide Management Plans are the necessary fabric binding together the efforts to achieve zero discharge of persistent toxic pollutants into the Great Lakes. Without these plans we will continue to have unacceptability high levels of toxic contaminants within the system and the unintentional exposure of humans and fish and wildlife will continue. The adverse consequences of that exposure can only get worse.

In conclusion, I would like to emphasize the Great Lakes Water Quality Agreement between Canada and the United States is a visionary and precedent setting document. If fully implemented - it would reverse the environmental degradation of the Great Lakes ecosystem and make great strides to improve human and wildlife welfare. The enshrinement of some of the important commitments of that agreement into law as proposed within the Great Lakes Water Quality Improvement Act will be a major step towards achieving clean-up of the Great Lakes. The clean-up and protection of the Great Lakes once achieved will provide to other regions of the United States and the world a dramatic example of the ability of humans to come to grips with restoring and protecting the environment on which we depend.

36-202 - 91 - 8

ADDITIONS TO THE RECORD

Canadian Embassy Ambassade du Canada

501 Pennsylvania Ave N.W.
Washington, D.C. 20001

May 29, 1990

The Honourable Henry J. Nowak
House of Representatives
Rayburn House Office Bldg., Rm. 2240
Washington, D.C.
20515-3233

Dear Congressman Nowak:

As you know, Canada has a strong interest in preserving and enhancing the water quality of the Great Lakes. To this end, in 1989 we substantially increased our federal Great Lakes funding and initiated a major water quality program for the St. Lawrence River.

I understand that questions of federal leadership and funding for Great Lakes programs formed an important part of a hearing you held on May 2 and that, while the commitment of both governments was called into question, Canadian funding and program increases were not mentioned. I would, therefore, like to take this opportunity to submit for the hearing record the attached paper, an updated version of a speech delivered to the Great Lakes Commission meeting in April, to reflect more accurately Canadian policies undertaken to meet obligations under the Great Lakes Water Quality Agreement.

Finally, let me also take this opportunity to commend you for the leadership you have shown in promoting the clean up and protection of the Great Lakes. I look forward to continuing our close cooperation in resolving Great Lakes problems.

Yours sincerely,

D.H. Burney
Ambassador

CANADIAN FEDERAL FUNDING FOR GREAT LAKES/ST. LAWRENCE RIVER PROGRAMS: A STATUS REPORT

GOOD MORNING LADIES AND GENTLEMEN; BONJOUR MESDAMES ET MESSIEURS. IT IS WITH GREAT PLEASURE THAT I JOIN YOU HERE IN MONTREAL TODAY TO TALK ABOUT CANADIAN FEDERAL FUNDING FOR THE GREAT LAKES/ST.LAWRENCE RIVER PROGRAMS. SO OFTEN MY CONTACT WITH THE GREAT LAKES COMMISSION HAS BEEN IN WASHINGTON D.C. AND, AS YOU KNOW, IT IS A TOUGH PLACE TO GENERATE INTEREST IN A REGION, LET ALONE AN AWARENESS OF CANADIAN INTERESTS. BUT SITTING HERE, IN CANADA, CLOSE TO THE ST.LAWRENCE RIVER, IT IS MUCH EASIER TO SEE THE CANADIAN INTEREST IN, AND TO SENSE THE URGENCY AND NEED FOR PROGRAMS ON BOTH SIDES OF THE BORDER TO PREVENT FURTHER POLLUTION IN THE GREAT LAKES BASIN, TO CLEAN UP THE PROBLEMS ALREADY CREATED, AND PROVIDE THE NECESSARY FUNDING TO MAKE IT ALL HAPPEN.

THE GREAT LAKES ARE AMONG CANADA'S MOST IMPORTANT NATURAL RESOURCES. OVER TWENTY-FIVE PERCENT OF CANADA'S POPULATION LIVES CLOSE TO THE GREAT LAKES, WHICH PROVIDE DRINKING WATER AND OTHER ESSENTIALS TO THE REGION. IN PUBLIC OPINION POLLS, THE SAME CANADIANS HAVE RATED A HEALTHY ENVIRONMENT AS A PRIORITY AND HAVE EVEN INDICATED A WILLINGNESS TO PAY FOR IT THROUGH INCREASED TAXATION. THE CANADIAN GOVERNMENT, THEREFORE, HAS A CLEAR MANDATE TO TACKLE THE PROBLEM OF GREAT LAKES POLLUTION CONTROL AND CLEANUP AS A PRIORITY.

WE ARE WELL AWARE IN THE CANADIAN GOVERNMENT OF THE SERIOUS PROBLEMS CONFRONTING US IN THE GREAT LAKES. IN RECOGNITION OF THE NEED TO EXTEND OUR COMMITMENT TO DEALING WITH THESE PROBLEMS, WE AMENDED THE GREAT LAKES WATER QUALITY AGREEMENT OF 1978 WITH THE 1987 PROTOCOL, ALONG WITH THE UNITED STATES, INCREASING THE FORMAL OBLIGATIONS OF EACH COUNTRY TO THE GOALS OF THE AGREEMENT. IN DIRECT RESPONSE TO THIS INCREASED COMMITMENT, THE CANADIAN GOVERNMENT IN 1988 ANNOUNCED TWO IMPORTANT STEPS: (1) AN INCREASE OF $125 MILLION IN OUR FUNDING FOR GREAT LAKES PROGRAMS THROUGH THE GREAT LAKES ACTION PLAN; AND (2) $110 MILLION TO FUND THE ST.LAWRENCE RIVER ACTION PLAN. TO EMPHASIZE THE IMPORTANCE OF THESE INCREASES, WHICH WILL BE DISBURSED OVER A FIVE-YEAR PERIOD, YOU SHOULD KNOW THAT THEY HAVE COME DURING A TIME OF TOUGH FISCAL CONSTRAINT IN CANADA AS THE FEDERAL GOVERNMENT TRIES TO REDUCE THE DEFICIT.

I THINK IT WOULD BE USEFUL TO DESCRIBE THESE TWO ACTION PLANS IN MORE DETAIL TO GIVE YOU A BETTER IDEA OF THE ALLOCATION OF CANADIAN FUNDS AMONG THE VARIOUS GREAT LAKES/ST.LAWRENCE RIVER PROGRAMS.

FIRST, THE GREAT LAKES ACTION PLAN, TOTALLING $125 MILLION OVER FIVE YEARS, CONSISTS OF THREE MAJOR COMPONENTS:

- THE GREAT LAKES CLEANUP FUND	$55 MILLION
- THE HEALTH EFFECTS PROGRAM	$20 MILLION
- THE PRESERVATION FUND	$50 MILLION

FIRST, **THE CLEANUP FUND** IS DESIGNED FOR USE IN THE IMPLEMENTATION OF REMEDIAL ACTION PLANS (RAPS) IN AREAS OF CONCERN AROUND THE GREAT LAKES. AS YOU KNOW, FORTY-TWO SEVERELY POLLUTED AREAS HAVE BEEN IDENTIFIED.TWELVE OF THESE ARE IN CANADA, TWENTY-FIVE ARE AMERICAN AND FIVE ARE SHARED. IN 1986, CANADA TOOK THE LEAD BY FORMALLY COMMITTING TO THE CLEANUP OF THESE AREAS JOINTLY WITH THE PROVINCE OF ONTARIO, THROUGH THE RAP PROGRAM. THE GREAT LAKES CLEANUP FUND IS DESIGNED TO ENSURE THAT REMEDIAL MEASURES SELECTED WHICH FALL WITHIN THE FEDERAL JURISDICTION, AND FOR WHICH THERE ARE NO EXISTING PROGRAMS, ARE ADEQUATELY FINANCED. THE FUND IS ADMINISTERED BY ENVIRONMENT CANADA WITH THE ADVICE OF THE INTERDEPARTMENTAL GREAT LAKES WORKING GROUP.

SECOND, **THE HEALTH EFFECTS PROGRAM** IS DESIGNED TO MEET THE NEW REQUIREMENTS OF THE 1987 PROTOCOL TO THE 1978 GREAT LAKES WATER QUALITY AGREEMENT. IT IS BASED ON FIVE FEATURES:

- ACQUISITION AND EVALUATION OF DATA ON THE LEVELS AND EFFECTS OF ENVIRONMENTAL CONTAMINANTS (CHEMICAL AND MICROBIOLOGICAL) WITH RESPECT TO HUMAN POPULATIONS;
- HEALTH RISK ASSESSMENT OF CURRENT AND POTENTIAL IMPACTS ON POPULATIONS WITHIN THE BASIN;
- PROTECTION OF PUBLIC HEALTH FROM CONCURRENT EXPOSURE TO MIXTURES OF CHEMCALS FROM ALL SOURCES;
- PUBLIC PARTICIPATION AND INFORMATION EXCHANGE ON HEALTH ISSUES IN THE BASIN; AND
- SOUND INTER-AGENCY PROGRAM CO-ORDINATION AND MANAGEMENT.

THIS PROGRAM IS BEING ADMINISTERED BY THE ENVIRONMENTAL HEALTH DIRECTORATE AT HEALTH AND WELFARE CANADA.

AND THIRD, **THE PRESERVATION PROGRAM**, WHICH IS PRIMARILY DESIGNED TO ADDRESS IN A COMPREHENSIVE WAY THE WIDESPREAD CONTAMINATION OF THE GREAT LAKES ECOSYSTEM BY TOXIC CHEMICALS. THIS PROGRAM ALSO CONSISTS OF FIVE COMPONENTS WHICH ADDRESS THE MAJOR ASPECTS OF GREAT LAKES POLLUTION:

- ECOSYSTEM HEALTH
- LAND-BASED POLLUTION SOURCES
- POLLUTION ASSOCIATED WITH SHIPPING
- CONTAMINATED SEDIMENTS, AND
- AIRBORNE CONTAMINANTS.

THESE COMPONENTS ARE ALSO DESIGNED TO MEET THE NEW REQUIREMENTS OF THE 1987 PROTOCOL TO THE GREAT LAKES WATER QUALITY AGREEMENT.

THE GREAT LAKES ACTION PLAN COMPLEMENTS THE $110 MILLION ST.LAWRENCE RIVER ACTION PLAN I MENTIONED EARLIER.

THE ST.LAWRENCE ACTION PLAN TO PROTECT, CONSERVE AND RESTORE THE ST. LAWRENCE RIVER IS THE FEDERAL GOVERNMENT'S MOST IMPORTANT ENVIRONMENTAL INITIATIVE IN THE PROVINCE OF QUEBEC. AT THE SAME TIME AS THE ACTION PLAN WAS ANNOUNCED, A FEDERAL/PROVINCIAL CONVENTION WAS SIGNED WITH QUEBEC UNDER WHICH THE TWO GOVERNMENTS WILL BECOME FULL PARTNERS IN THIS EXTENSIVE CLEANUP PROGRAM. THE FEDERAL ACTION PLAN HAS FOUR COMPONENTS: CONSERVATION, PROTECTION, RESTORATION AND ENVIRONMENTAL TECHNOLOGIES. A MORE DETAILED DESCRIPTION MAY BE HELPFUL:

CONSERVATION: THIS COMPONENT, BUDGETED AT $20 MILLION, WILL PROTECT ENDANGERED SPECIES AND SENSITIVE AREAS IN THE RIVER SYSTEM. IT INCLUDES THREE PROGRAMS:

- PROVISION FOR THE CREATION OF A MARINE PARK AT THE CONFLUENCE OF THE ST.LAWRENCE AND SAGUENAY RIVERS;
- PROTECTION AND ENHANCEMENT OF MAJOR WILDLIFE HABITATS ALONG THE ST.LAWRENCE, INCLUDING PROVISION FOR THE CREATION OF A WILDLIFE RESERVE IN THE ARCHIPELAGO BETWEEN MONTREAL AND SOREL; AND

- MEASURES FOR ENSURING THE SURVIVAL OF ENDANGERED SPECIES, PARTICULARLY THE BELUGA WHALE, THE PEREGRINE FALCON, THE AMERICAN BLACK DUCK, THE BLUE-WINGED TEAL, THE STRIPED BASS AND THE ATLANTIC STURGEON;

PROTECTION: TWO PROGRAMS MAKE UP THIS COMPONENT OF THE PLAN, TOTALLING $14 MILLION:

- IDENTIFICATION OF ALL INDUSTRIAL SITES THAT NEGATIVELY AFFECT THE RIVER AND AN ASSESSMENT OF THE WASTES THEY GENERATE, LEADING TO THE ADOPTION OF COMPLIANCE SCHEDULES. UNDER THE "POLLUTER PAYS" PRINCIPLE, THE COSTS OF COMPLIANCE WILL BE BORNE BY THE INDUSTRIES CONCERNED, AND
- ASSESSMENT OF THE SOURCES AND PATHWAYS OF TOXIC SUBSTANCES ENTERING THE QUEBEC SECTION OF THE ST.LAWRENCE FROM UP-STREAM AND MAJOR TRIBUTARIES. THE KNOWLEDGE GAINED WILL BE USED FOR MONITORING PROGRESS AND ADJUSTING PROGRAM ACTIONS IN EFFORTS TO REDUCE POLLUTION IN THE ENTIRE GREAT LAKES/ST.LAWRENCE ECOSYSTEM;

RESTORATION: THIS ASPECT OF THE PLAN DEALS WITH THE CLEANUP OF FEDERAL FACILITIES AND THE REHABILITATION OF WETLANDS. IT INVOLVES TWO PROGRAMS WITH A TOTAL BUDGET OF $21 MILLION:

- DEVELOPMENT AND USE OF IMPROVED DREDGING METHODS, FOCUSSING ON THE CLEANUP OF FEDERAL FACILITIES, PARTICULARLY THE PORTS OF MONTREAL, TROIS-RIVIERES AND QUEBEC CITY, AS WELL AS THE LACHINE CANAL, AND

- REHABILITATION OF WETLANDS ALONG THE ST.LAWRENCE RIVER THAT ARE AFFECTED BY POLLUTION; AND

ENVIRONMENTAL TECHNOLOGIES: THIS COMPONENT HAS THREE PROGRAMS WITH A BUDGET TOTALLING $55 MILLION, THE BULK OF WHICH WILL SUPPORT COST-SHARED PROJECTS INVOLVING INDUSTRY, PROVINCIAL AND FEDERAL AGENCIES, UNIVERSITIES AND OTHER NON-GOVERNMENTAL INSTITUTIONS:

- DEVELOPMENT AND APPLICATION OF POLLUTION ABATEMENT TECHNOLOGIES TAILORED TO MEET THE SITE-SPECIFIC POLLUTION PROBLEMS OF INDUSTRIAL PLANTS EMITTING POLLUTANTS INTO THE ST.LAWRENCE RIVER.
- MONITORING OF WATER QUALITY,SEDIMENTS AND BIOTA AND LABORATORY ANALYSES OF SURVEY SAMPLES. THIS PROGRAM ALSO PROVIDES FOR AN ENHANCED CAPACITY FOR ORGANIC CHEMISTRY ANALYSIS, AND
- CONTINUING SURVEILLANCE AND REPORTING ON THE CONDITION OF THE RIVER. "STATE OF THE RIVER" REPORTS WILL BE ISSUED PERIODICALLY.

THE ST.LAWRENCE CENTER WILL BE THE FOCAL POINT FOR MANAGING AND CO-ORDINATING IMPLEMENTATION OF THE FEDERAL PLAN.

THE NEW CANADIAN FEDERAL FUNDING FOR THE GREAT LAKES/ST.LAWRENCE RIVER BASIN TOTALS $235 MILLION OVER THE NEXT FIVE YEARS. HOWEVER, THE INCREASE IN COMMITMENT ON THE PART OF THE CANADIAN FEDERAL GOVERNMENT TO MEETING THE GOALS OF THE GREAT LAKES WATER QUALITY AGREEMENT DOES NOT END WITH THE ACTION PLANS AND BUDGETS FOR THE GREAT LAKES AND ST.LAWRENCE RIVER. AS YOU MAY BE AWARE, IN A MAJOR NEW INITIATIVE, THE MINISTER OF THE ENVIRONMENT IS CANVASSING OPINION THROUGHOUT CANADA ON A FAR-REACHING ENVIRONMENTAL AGENDA KNOWN AS THE GREEN PLAN.

THROUGH THE GREEN PLAN, ENVIRONMENT CANADA IS PROPOSING TO BUILD INTO OUR APPROACH TOWARDS THE ENVIRONMENT THE SUSTAINABILITY ETHIC. AS RECOMMENDED BY THE WORLD COMMISSION ON THE ENVIRONMENT AND DEVELOPMENT, ENVIRONMENTALLY SUSTAINABLE ECONOMIC DEVELOPMENT HAS TO BE GIVEN SERIOUS CONSIDERATION BY BOTH THE DEVELOPED AND THE DEVELOPING WORLD IF WE ARE TO CONTINUE TO USE THE NATURAL RESOURCES WE HAVE TAKEN FOR GRANTED FOR SO LONG. TOWARDS THIS END, ENVIRONMENT CANADA IS SETTING UP THE PROCESS TO REGULATE THE MAJOR POLLUTING INDUSTRIES UNDER THE CANADIAN ENVIRONMENTAL PROTECTION ACT AND TO CLOSE LEGISLATIVE GAPS.

OF PARTICULAR INTEREST TO THE GREAT LAKES REGION, PROPOSED NEW LEGISLATIVE MEASURES WILL INCLUDE A DRINKING WATER SAFETY ACT. UNDER THE CANADIAN SYSTEM OF GOVERNMENT, PROCEDURES FOR APPLYING THE STANDARDS SET UP UNDER THIS LEGISLATION WILL NEED TO BE DEVELOPED IN CONSULTATION WITH THE PROVINCES WHO, AS YOU MAY KNOW, HAVE THE PRIMARY RESPONSIBILITY IN CANADA FOR THEIR NATURAL RESOURCES (AND BY THE WAY, PROVINCIAL BUDGETS FOR THE GREAT LAKES/ST.LAWRENCE BASIN ARE NOT INCLUDED IN THE FIGURES IN THIS PAPER).

WE ARE ALSO CONSIDERING A CANADA OCEANS ACT TO PROVIDE FOR THE PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT. IN ADDITION, UNDER THE CANADIAN ENVIRONMENTAL PROTECTION ACT, ENVIRONMENT CANADA IS ASSESSING 44 CHEMICALS TO DETERMINE THE NEED FOR FURTHER REGULATION. NEW REGULATIONS TO CONTROL DIOXINS AND FURANS FROM PULP AND PAPER MILLS ARE ALSO UNDER DEVELOPMENT. ALSO, THE PROVINCE OF ONTARIO'S MUNICIPAL INDUSTRIAL STRATEGY FOR ABATEMENT WILL ADDRESS THE PRE-TREATMENT REQUIREMENTS FROM MUNICIPAL AND INDUSTRIAL DISCHARGERS.

THESE MEASURES WILL FILL THE LEGISLATIVE GAPS IN THE CANADIAN ARMORY OF WEAPONS TO FIGHT THE DEPRECIATION OF OUR GREAT LAKES RESOURCE. TOGETHER WITH OTHER NEW INITIATIVES AND THE NECESSARY FUNDING WITH WHICH TO IMPLEMENT THEM, WE ARE OPTIMISTIC THAT THE FRAMEWORK WILL BE THERE TO ENSURE THAT THE CANADIAN FEDERAL GOVERNMENT IS BETTER-PLACED TO MEET ITS INTERNATIONAL OBLIGATIONS UNDER THE GREAT LAKES WATER QUALITY AGREEMENT.

AS YOU MAY NOW SEE FROM WHAT I HAVE SAID HERE TODAY, THE CANADIAN FEDERAL GOVERNMENT IS MAKING A SIGNIFICANT EFFORT TO GIVE THE GREAT LAKES THE PRIORITY THEY DESERVE AND TO MOVE STEADILY FORWARD TOWARDS THE GOALS OF THE GREAT LAKES WATER QUALITY AGREEMENT. HOWEVER, WE CANNOT DO THIS ALONE. THE CHALLENGE OF THE GREAT LAKES MUST BE TAKEN UP AT ALL LEVELS OF GOVERNMENT AND BY THE INDUSTRIAL AND PRIVATE SECTORS. WE NEED FULL INVOLVEMENT AND COMMITMENT OF RESOURCES FROM ALL USERS OF THIS NATURAL RESOURCE TO ENSURE IT REMAINS A "RENEWABLE" RESOURCE.

FINALLY, CANADA CANNOT DO THIS WITHOUT AT LEAST EQUAL COMMITMENT FROM THE UNITED STATES. FROM THE CANADIAN PERSPECTIVE, THE PICTURE IS DISCOURAGING. WHILE WE ARE INCREASING OUR FUNDING AND PROGRAMS TO IMPLEMENT THE GREAT LAKES WATER QUALITY AGREEMENT, WE LEARN FROM ENVIRONMENTAL ORGANIZATIONS, WHO HAVE WADED THROUGH THE MORASS OF USA FEDERAL BUDGET PROPOSALS FOR A HALF DOZEN OR MORE AGENCIES, THAT THE ADMINISTRATION WANTS TO CUT GREAT LAKES PROGRAMS, NOT INCREASE THEM. WE HAVE ASKED THE EPA FOR A CLARIFICATION OF THESE FIGURES AND LOOK FORWARD TO A RESPONSE IN THE NEAR FUTURE.

THE GREAT LAKES/ST.LAWRENCE RIVER FORM ONE DISTINCT SYSTEM AND, TO THE EXTENT POSSIBLE, WHERE TWO SOVEREIGN NATIONS ARE INVOLVED, IT SHOULD BE JOINTLY MANAGED. AS FAR AS CANADA IS CONCERNED, IT IS ESSENTIAL FOR US ALL TO WORK TOGETHER IF WE ARE TO ENSURE THAT THE GREAT LAKES ARE ACCORDED THE PRIORITY AND THE FUNDING WHICH, IN TERMS OF THE IRREPLACEABLE NATURAL AND HUMAN RESOURCES AT STAKE, THEY SO URGENTLY NEED.

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STATEMENT OF

DR. PAUL W. RODGERS

VICE-PRESIDENT, LIMNO-TECH, INC.

AND

DR. JOSEPH M. O'CONNOR

SENIOR SCIENTIST, AQUATIC HABITAT INSTITUTE

ON BEHALF OF THE

WATER POLLUTION CONTROL FEDERATION

SUBMITTED TO THE

SUBCOMMITTEE ON WATER RESOURCES

HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

HEARING ON GREAT LAKES WATER QUALITY ISSUES

April 26, 1990

PRESIDENT Arthur Saarinen Maitland, FL
PRESIDENT-ELECT C.B. Kaiser, Jr. St. Louis, MO
VICE PRESIDENT R.J. Dolan Martinez, CA
TREASURER K.W. Mueldener Topeka, KS
PAST PRESIDENT J.E. Abbott Denver, CO
EXECUTIVE DIRECTOR Quincalee Brown Alexandria, VA

The following testimony is presented on behalf of the Water Pollution Control Federation (WPCF), a technical and educational organization consisting of 35,000 water quality professionals. WPCF members are scientists, wastewater treatment plant operators, environmental engineers, and state, federal and municipal officials. For over 60 years the Federation has endeavored to be a forum for the exchange of knowledge on water pollution issues via our many publications and meetings.

The testimony was prepared by Dr. Paul W. Rodgers and Dr. Joseph M. O'Connor. Dr. Rodgers is Vice-President of Limno-Tech, Inc., an environmental engineering consulting firm. He is also an Adjunct Associate Professor at the University of Michigan in Ann Arbor. Dr. O'Connor is Senior Scientist at the San Francisco Bay-Delta Aquatic Habitat Institute in Richmond, California.

The first half of the testimony, prepared by Dr. Rodgers, describes the magnitude of the sediment contamination problem in the Great Lakes, including a discussion of our progress to date in addressing this problem as well as specific recommendations that might assist scientific, regulatory, private sector, and citizen efforts to tackle this massive problem. The second half of the testimony, prepared by Dr. O'Connor, addresses sediment contamination on a national level and includes a discussion of health risks, remediation, and ocean dumping.

CONTAMINATED SEDIMENTS IN THE GREAT LAKES

Section 118 of the 1987 Clean Water Act provides much of the federal recognition and funding authorization necessary to address the pollution problems which motivated the 1978 Great Lakes Water Quality Agreement between Canada and the United States. Eighty percent of the freshwater resources of both countries are found in these waterways, which presently serve the needs of 7.5 million Canadians and 40 million U.S. citizens. Over 24 million of these citizens depend on the Great Lakes for their sole source of drinking water.

The International Joint Commission (IJC) has identified 42 "Areas of Concern" throughout the Great Lakes where general or specific objectives of the Great Lakes Water Quality Agreement have not been met. Failure to meet the stated water quality objectives was expected to cause impairment of either beneficial uses or the site's ability to support aquatic life. Because carcinogenic chemicals are known to be present at elevated levels at most of these sites, a risk to human health is also perceived. It is these water quality objectives (goals) that also are the stated "Purpose" of Section 118 of the Clean Water Act. In 41 of the 42 Areas of Concern, in-place sediment pollution has been identified as one of the environmental problems requiring assessment and possible remediation. To provide a better picture of the magnitude of the sediment problem, I offer the following observations for your consideration.

1. At least 362 toxic chemicals have been identified in the Great Lakes. At least 11 of these chemicals are identified as Critical Pollutants by the IJC because they are so pervasive and at such elevated levels, even though substantial regulatory abatement has been ongoing. These chemicals may be capable of causing adverse, often irreversible effects in a wide range of mammalian and aquatic species.

2. Fish and bird species have been shown to exhibit disease, tumors and malformations in areas having elevated levels of polluted sediments. Chemical extracts from contaminated sediments in the Buffalo River and the Black River have been shown to experimentally elicit skin and liver alterations and tumors in fish.

3. Remediation costs for sediments run from $10-$1500 per cubic yard. The low end represents dredging and confined disposal only. Any treatment, destruction or adherence to certain TSCA and RCRA requirements necessitates these costs to be in the hundreds of dollars per cubic yard, with complete destruction these costs approach the $1000+ per cubic yard figure. A recent estimate by the Army Corps of Engineers for a specific remediation scenario indicated that the cost for dredging and

treatment of sediment may be about $250 per yard. This figure corresponds reasonably well, albeit on the low side, with observations I have had when working with private clients. [SEE FIGURE 1].

4. It is difficult to estimate how much sediment needs remediation because: a) the science to evaluate the need or extent of remediation has rarely been used; b) clean-up standards or guidelines do not yet exist; this issue is often referred to as "How Clean is Clean?"; and c) this estimate, like many other issues, is not subject to sufficient regional assessment by authorities. The volume of sediment potentially subject to remediation ranges from 100,000 to 10 million cubic yards per Area of Concern site. If we assume an average volume of sediments per site to be 1 million cubic yards, then there may be approximately 40 million cubic yards of contaminated sediment subject to potential remediation. [SEE FIGURE 1]

5. The total cost of dredging, and treatment and/or disposal of highly contaminated sediments in the Areas of Concern would conservatively be approximately $10 billion. This is based on limited information on sediment conditions for just the Areas of Concern and generalized average cost estimates. [SEE FIGURE 1]

I hope that these five brief observations regarding the chemical nature of the sediments, the abundance of contaminated sediments, and the staggering potential costs highlight the magnitude of the sediment contamination problem in the Great Lakes.

Now, I would like to turn my attention to the progress we have made to date and the challenges we have uncovered. Since the early 1970s, scientists and regulatory agencies have been measuring toxicants in the Great Lakes largely on a piecemeal basis. Nevertheless, during these two decades a clearer picture of the toxic contamination picture has emerged. As mentioned before, at least 362 chemicals have been observed. Chemicals of major concern identified by the IJC include PCBs, DDT, Dieldrin, Toxaphene, Dioxins, Furans, Mirex, Mercury, Alkylated lead, Benzo(a)pyrene, and Hexachlorobenzene. These chemicals have been observed in the air, water, soil, and in biota such as fish. We have known for sometime that many chemicals are transported by air and that significant portions of the total contaminant loading to the Great Lakes has been via atmospheric routes. Therefore, no longer can environmental management of waters concentrate only on the end of the effluent pipe. Its worth noting that levels of contaminants that have ceased production (e.g. DDT, PCBs) have decreased in game fish in many Great Lakes areas.

Perhaps the most scientifically important observation made regarding the expected behavior of the major chemicals of concern is that they preferentially partition or associate on to solids. This propensity for heavy metals and many toxic organics to absorb onto solids is the reason why elevated levels of so many chemicals are found in the sediments of the Great Lakes and elsewhere. Nature, in effect, has succeeded in partially cleansing our waters and depositing the waste in the sediments which underlie our waterways. The actual site specific impact of these contaminated sediments on human health and aquatic species has only begun to be answered. From a scientific perspective, it is not sufficient to merely know that a toxic chemical resides in sediment; rather, the scientist requires that the routes of human and aquatic exposure be quantified in order to calculate the risk a site poses with and without remediation and before and after remediation.

I was a co-principal investigator on a comprehensive human risk assessment of Waukegan Harbor, Lake Michigan. This study provided the ability to assess the actual risk posed by a contaminated sediment. No longer were managers forced to depend on just the knowledge of the mere presence of a toxicant to guide remediation. Candidate remedial actions could be compared based on their comparative residual risks. This study even answered the question of how much risk is posed during a remedial action, which for certain actions was quite substantial. This site specific analysis incorporated scientific knowledge of the site as well as the behavior of the chemical. Therefore, the chosen remedial action reflected the total nature of the site which resulted in a cost effective solution which minimized the actual risk of the site. Interestingly, this risk assessment played an instrumental role in allowing a remedial action to begin following a decade of lawsuits and inaction.

Another major study of sediment contaminants was a recent study by the EPA on the Trenton Channel of the Detroit River. Although a risk assessment was not conducted here, many scientific issues were investigated in an integrated fashion. These issues ranged from the measurement of sediment toxicity to the likelihood that sediment re-suspensions would occur that would exceed water quality criteria. These data allowed a preliminary ranking system to be developed which allows regulators to set priorities for remediation of contaminated sediments. An ongoing study on Green Bay, Lake Michigan is allowing the science of contaminant fate to advance a major notch toward the development of a management tool to guide remediation decision making. Hopefully, resources will be made available to use this management tool to guide costly decision making.

Section 118 of the Clean Water Act enabled monies to be made available for five demonstration projects. So far these efforts are in the planning stage. Given the present level of funding

similar efforts will not be able to be expended on each of the five sites. Regulatory authorities already are indicating that only one, maybe two, sites will receive the intensive effort originally envisioned. Unfortunately, the planning has not proceeded from the basis of establishing specific questions to be answered, developing a framework or integrated approach to focus on the answers, and then releasing RFPs for competitive bids. In this case I would hope the need for competition would be for better ideas and not for low costs or administrative convenience. With billions of dollars at stake in remediation and the welfare of millions of citizens and numerous industries in the balance, this problem deserves more resources in terms of planning, in terms of research, and in terms of actual remediation.

Accordingly, I recommend the following:

1. Integrate the sediment remediation program with other point source and nonpoint source regulatory programs to ensure minimal recontamination after remediation is implemented.

2. Consider "Goal-Oriented" site-specific remediation. More cost effective and innovative solutions are likely. Establishing post-remediation goals would be a major step forward in the overall regulatory effort.

3. Encourage site-specific evaluations of the need and extent of remediation instead of generalized TSCA, CERCLA, RCRA, or criteria based requirements that do not consider site-specific issues. Such assessments can be risk assessments or scientifically based ranking systems to set remediation priorities. Otherwise, the mammoth costs associated with generic approaches will halt the progress of meaningful remediation.

4. Support the science necessary to make site specific assessments. A well-focused workshop to identify and set research priorities would be helpful. Management questions of concern should be the principal focus of consideration. Scientists whose expertise is integrating information into evaluation models and risk assessments should facilitate the workshop.

5. Our regulatory efforts should better recognize that more money needs to be spent up-front if monies are to be saved on wasted expenditures later. Note that our limited experiences on the Great Lakes has already shown that tens of millions of dollars can be saved on a single site if sufficient science is invested on a site specific investigation of actual risk before opting for a remedial action (e.g. Waukegan Harbor).

6. At least three major sediment remediation oriented projects have or are being conducted in the Great Lakes. Build on our success, encourage RFPs for better ideas and research teams.

Allow as many Great Lakes scientists as possible to apply their knowledge gained on these unique systems over decades rather than imposing generic approaches void of local insight.

7. As a society we need to be cautious of succumbing to the temptation of too hurriedly proceeding to demonstrate accomplishment. Proceed based on the "scientific method" and thereby assure the cost effective and environmentally sound solution.

8. Encourage efforts to develop less costly treatment technologies. Presently, the prolonged cost associated with bringing an effective technology to market is dominated by the many regulatory and liability issues confronting the entrepreneur. Sufficient regulatory oversight is necessary, but duplicate oversight and roadblocks should be minimized at every opportunity. I recommend that Congress direct EPA to streamline its technology review process.

9. Low cost methods that can remediate 90% or more of a problem should be encouraged even if the solution is not permanent or does not meet generic government requirements. Such intermediate solutions could be more rapidly and widely implemented thereby globally lowering the effective risk of contaminants while still being subject to subsequent treatment as improved technology is made available.

10. Support research and development of more effective confined disposal facilities as a possible receptacle of contaminated sediments. Presently, effective disposal of contaminated sediments outside privately operated hazardous waste facilities may reduce remedial costs by a factor of ten.

11. Seriously consider the development of regional treatment facilities rather than necessitating a site-by-site battle for resources and remediation alternatives. The all too common roadblock of what to do with the recovered contaminated sediments could thus be minimized.

CONTAMINATED SEDIMENTS: A MARINE PERSPECTIVE

The problem of contaminated marine sediments is a complex one, closely intertwined with questions of the inappropriate disposal and escape of hazardous waste material, as well as the necessity to dredge and dispose of sediments that accumulate in navigation channels that are maintained by both federal and private entities.

Sedimentation in marine systems is a natural process, and sediments act quite naturally as vectors for removing trace metals and organic compounds from the water column. The potential for sediments to accumulate high concentrations of toxic or potentially toxic materials is related to three factors, 1) the particle-size distribution of the sediments in question, 2) the amount of organic carbon associated with the sediments and the 3) availability of pollutants and contaminants to become adsorbed on or absorbed within the sedimentary particles. Much of the problem of contaminated sediment that we deal with today, in estuarine and near-coastal marine environments, is the result of pollutants and contaminants being released or dumped in areas where suspended sediments may accumulate the pollutant materials and, subsequently, settle to the bottom in areas of sediment deposition. Contaminated marine sediments are, characteristically, a problem of what we refer to as urban-industrial estuarine environments (e.g. Boston Harbor, Narragansett Bay, New York Harbor, Baltimore Harbor, San Francisco Bay, Puget Sound and estuarine and ocean disposal dump-sites located near these ports and others around the country).

All estuarine and marine sediments from urban-industrial areas will contain some pollutants. This is a matter of physical chemistry that cannot be denied; as long as there are discharges of pollutants and contaminants from industrial activity, wastewater discharge, urban and non-urban runoff and atmospheric deposition, there will be contaminants in sediments. The most readily identifiable solution to the problem of contaminated marine sediments lies in the reduction of pollutant sources in our major urban-industrial port areas.

Assuming that the latter solution cannot be implemented in the immediate future, the important question to be asked and answered is; "What proportion of sediments are contaminated and represent a source of pollutants to other ecological compartments (i.e., the water column and the biota)?"

The answer to this question depends upon a classification system, and no consistent classification system or methodology for classification has been developed for application to sediments around the country. Classification of contaminated sediments means a framework for the comparison of individual sediments with certain criteria and drawing conclusions as to the potential for the sediment in question to exert adverse impacts on the environment.

Classification schemes may be empirical or predictive. At least two versions of empirical classification schemes have been developed, in the form of joint Corps-EPA Criteria Documents for sediment testing (1977 and 1989). Predictive classification schemes are only now being developed in the form of sediment quality criteria. Development of these criteria is underway within federal and state agencies such as the Corps of Engineers, EPA, State of Washington, State of California and others.

As is almost always true, empirical testing is the most effective classification scheme for any sediment suspected of being contaminated. The tiered "Federal Standard" approach provides actual data on the potential for sediments to cause environmental impact. Assuming these data are interpreted in a reasonable fashion, decisions regarding disposal may be assumed to be consistent with maintenance of environmental quality.

However, empirical testing is an expensive process. Development of predictive classification schemes, and promulgation of sediment quality criteria, would solve many of the economic problems associated with the "Federal Standard." The question remains, however, as to which of several predictive approaches to sediment classification is best. On the one hand the equilibrium partitioning approach (EP) may be said to take all physical and biological factors into account in predicting the accumulation (and potential impact) of pollutants in disposed sediments. On the other hand, proponents of the apparent effects threshold (AET) approach claim that AET is the most reasonable predictive classification scheme because it is based upon actual biological responses to sediments.

The Science Advisory Board of the EPA has reported on the suitability of these "opposing" viewpoints related to predictive classification of contaminated sediments. Not surprisingly, the conclusion of the SAB Panel was that each scheme offers advantages and disadvantages, and that further development of both is called for. Future sediment quality criteria will, undoubtedly, be derived from a combination of several different approaches. I would urge the Congress to provide support to this effort, both at the Federal and State level. I would further urge the Congress to desist from writing legislation or encouraging rule-making that includes premature sediment quality criteria.

As for answering the question of "how much?," application of the Federal Standard to dredged material in the New York District led to the conclusion that some 2 to 5% of dredged material (only) in the New York District was "contaminated (i.e., either Category II or Category III material). Both Category II (moderately contaminated) and Category III (highly contaminated) material pose problems for disposal; Category II material can only be disposed if special measures are taken to prevent the contaminants from reaching the water column or the biota. Category III material can only be disposed under special circumstances, and in controlled disposal areas. The problem of disposal of Category III material has been addressed in most Corps Districts by not dredging such material, once it has been identified.

Contaminated marine sediments are not only a problem to be considered in the context of the need to dredge and maintain navigation channels. Contaminated sediments also exist as the result of the discharge of pollutants and contaminants to waterways, their subsequent association and transport with suspended sediments, and their deposition over wide areas of numerous waterways throughout the country. Excellent examples are the widespread contamination of New Bedford Harbor with PCBs, contamination of Foundry Cove in the Hudson River with cadmium and the widespread contamination of sediments throughout San Francisco Bay with several trace metals.

HEALTH RISKS

Health risks associated with contaminated marine sediments are related almost exclusively to the ingestion of chemically contaminated seafood organisms that have accumulated their burdens of pollutants from contaminated sediments. Accumulation of pollutants by seafood organisms probably occurs via two routes: 1) direct exposure to the pollutant in the dissolved form in the water, and 2) transport of the pollutants through marine food webs and accumulation in the species harvested for food. In general, health risks associated with the consumption by humans of contaminated seafood are greatest for inshore and anadromous species; i.e., those exposed to environments containing sediments with the greatest concentrations of persistent pollutants. Further, with the exception of mercury and methylmercury, the greatest health risks are not associated with trace metals. Rather, they are associated with persistent organic chemicals such as the PCBs, the DDT family of compounds, dioxins and certain polycyclic aromatic hydrocarbons (PAHs). Whether other classes of persistent compounds pose a health risk cannot be answered at this time. However, research is underway to develop rapid and efficient screening techniques to identify classes of potentially hazardous organic compounds in sediments. I would suggest to the Congress that support for such research

efforts be increased so that we can develop a full understanding of the hazards that may face us. At the present time it is possible to identify and quantify perhaps 15 to 25% of the organic compounds that exist in sediments; the remainder could hold some very unpleasant surprises for us, and it behooves us to look more carefully.

Significant, measurable health risks due to the consumption of seafood organisms contaminated solely from sedimentary sources may be very few (e.g., Foundry Cove, NY; the Palos Verdes Shelf off California). However, it is true that the dynamic cycling of persistent chemical pollutants between sediments, water, suspended sediments and biota depends in great part upon the presence of sedimentary deposits that act as both a sink and a source of ecosystem contamination. In this regard, seafood organisms from many estuaries and near-shore coastal environments may be shown to pose a measurable health risk to humans, and appropriate advisories against the consumption of many species of marine fish are in place throughout the nation.

It is, perhaps, easy to say that the solution to the health risk problem is to remove the polluted sediment, dispose of it, and take appropriate steps to avoid the re-introduction of hazardous chemical materials into the sedimentary compartment. Failed attempts to clean up polluted sediments by dredging have been documented in Foundry Cove in New York (Cd), in the James River, VA (kepone) and in other locations around the country. The dredging "solution" is far easier stated than implemented. Stated simply and directly, one must not assume that contaminated sediment can be "cleaned up" by the apparent straightforward process of dredging and appropriate disposal. Dredging itself can result in exacerbation of the problem and disposal poses almost monumental difficulties.

Problems of ecosystem contamination and health risk due to contaminated sediments are being addressed on several levels. One such level is to envision even contaminated sediment as a resource. As an example, Corps Districts are constantly evaluating appropriate means for the safe disposal of Category II and Category III dredged material. In the New York District substantial progress has been made in developing new approaches that treat contaminated dredged material as a resource. Engineering and feasibility studies have determined that Category II material can be used as interim and (possibly) final cover at sanitary landfills. In fact, the New York City Department of Sanitation has initiated a pilot project dewatering dredged material and using it for cover at the Fresh Kills Landfill in Staten Island. While this is not a full-scale effort, the pilot project has shown the approach to be feasible, and has served as a field test and "discovery" process for application of the technique on a broader scale.

Engineering and feasibility studies have also been carried out to use Category II and Category III material in confined, in-water disposal facilities. This approach to disposal can be applied to many, highly contaminated materials, primarily because the technique solves the problem of pollutants and contaminants associated with the dredged material leaching out and contaminating the water column and the biota. The secret to the method is to keep the dredged material wet and anaerobic, thereby preventing dissociation of pollutants and subsequent leaching to the water.

The pollution and public health problems have also been addressed in a relatively new and intensive research effort aimed at defining the factors that determine the accumulation of pollutants and contaminants from sedimentary sources. For example, it has been determined that the availability of organic pollutants, such as PCBs, DDT and dioxins, from sediments is related to the organic carbon content of the sediment. The more organic carbon in the sediment, the less available are the contaminants. Similar factors may exist for evaluating the availability of metals; however, more research is needed before anything certain can be concluded. These studies are the same as those underway to develop sediment quality criteria, and I urge Congress to support these studies as fully as possible.

COMPREHENSIVE REMEDIATION OF SITES

Remediation of contaminated sediments is not a simple matter. Based upon the studies I am aware of and the studies I have personally conducted or reviewed, I cannot, in all honesty, recommend a blanket policy that remediation of contaminated sediments should be undertaken comprehensively. In some cases it has been shown quite clearly that attempts at site remediation have served only to exacerbate the problem. In Foundry Cove, on the Hudson River, for example, attempts to remove sediments heavily burdened with cadmium resulted in a worse problem; surface sediments that before remediation had contained 12,000 ppm cadmium were found after dredging to contain from 20,000 to 65,000 ppm cadmium.

Similar problems could occur in attempting to "clean" PCB-contaminated sediments from New Bedford Harbor, or from the Upper Hudson River in New York, or dioxins from the Hackensack River in New Jersey. The hearings records from a number of court proceedings in the State of New York contain the opinions of numerous witnesses who would agree that, in many cases, the most productive thing to do with some deposits of contaminated sediments is to leave them in place and cover them or let them become covered with clean material. Many studies carried out in the field and in the laboratory have shown that a layer of clean

sediment about 50 cm thick will isolate contaminated sediments from contact with the water column and with most biota.

This solution, however, is limited by the ability to guarantee that the source of pollution has been eliminated. In many or most urban-industrial estuarine environments the constant influx of pollutants with wastewater flows, discharges and surface runoff make it difficult to envision covering contaminated sediments with clean sediments under natural conditions. The "leave-it-lie" solution to contaminated marine sediments depends entirely upon the elimination of contaminants in the discharges that were responsible for polluting the sediments in the first place.

Comprehensive remediation would be ill-advised. Remediation of contaminated sediments should only be attempted in situations where the source of pollution has been eliminated permanently, and in situations where disposal of the contaminated material can be guaranteed. This is impossible for most polluted marine sediments. The reason it is impossible is that there are no sites where the material can be disposed in any kind of reasonable and economic fashion. In my opinion both the EPA and the Corps of Engineers should be encouraged to undertake intensive research in disposal methodologies that will be suitable for heavily contaminated sediment (Category III material). One solution offered in the New York District has been the placement by pinpoint dumping of Category III material in subaqueous borrow pits, followed by capping with clean sand. Another has been the approach taken in Baltimore Harbor, with the placement of polluted sediments inside the Hart-Miller Island confinement. Such an approach should solve the problem. However, other locations around the country must be identified, engineered and brought on line as suitable, designated sites. Rarely, if ever, can the public be found to be in favor of such approaches.

OCEAN DUMPING

I think it would be unwise to eliminate categorically the ocean dumping of contaminated sediments. I strongly support the concept that there should be no further degradation of the oceans through the dumping of contaminated sediments, but that does not mean that certain sites in the ocean cannot be used for the disposal of contaminated materials. There exist many locations where Category II material can be disposed safely in the marine environment, provided the appropriate steps are taken to "render the material harmless" in the marine environment. Two locations that come to mind immediately are the Experimental Mud Dump Site in the New York Bight and the Dump site in Puget Sound where PCB-contaminated materials were disposed after dredging in the Duwamish Waterway.

The appropriate technique for safe disposal of contaminated sediment in the ocean environment requires pin-point dumping of material, followed by covering the contaminated material with a stable, long-lasting "cap" of uncontaminated material. Extensive studies of these techniques - and their successful application - have been performed in the New York Bight and in Puget Sound.

Caution must be applied, however, when choosing sites for disposal and capping of contaminated material. For example, neither pin-point dumping nor capping can be carried out easily in very deep water. The Disposal Area Monitoring System (DAMOS) of the New England Division of the Corps of Engineers and the Experimental Capping Operation of the New York District determined that dumping (and capping) could be performed successfully. Data and experience from the DAMOS program suggest also that a critical requirement of a successful capping operation is that the site be in an area of relatively low "energy." That is to say, areas with high-speed currents, or areas subject to intense wave action and shearing forces would not be suitable for implementation of capping operations.

These considerations virtually eliminate the possibility of capping operations on the Continental Slope or off the Continental Shelf. Similarly, they cause concern when considering capping operations in shallow bays and estuaries, such as San Francisco Bay, Boston Harbor, New York Harbor and other locations. In such areas it may be possible to dispose of contaminated sediments making use of natural or man-made depressions (e.g. sand-mining borrow pits) for the disposal of contaminated materials.

I believe that the United States should reduce to a minimum the ocean disposal of contaminated dredged material. Nonetheless, there are circumstances in which such disposal is warranted - and environmentally safe. My recommendation is that not only ocean dumping, but also aquatic disposal of contaminated material in bays and estuaries be carried out with capping, but in a carefully-controlled, carefully engineered manner that includes long-term monitoring of the dump-site. Monitoring should include regular measurement of contaminant concentrations in the sediments around the site, monitoring of the integrity of the cap and monitoring of aquatic populations in the immediate vicinity of the dumpsite. Such monitoring could, and should, include the use of biosentinel test organisms in a format similar to "mussel watch."

Reducing ocean disposal of contaminated sediments to a minimum can be addressed several ways. I have discussed and summarized these options in a recent report to the New York District, COE. Rather impractical approaches would be to eliminate dredging or to employ selective dredging criteria; that is, to decide not to dredge contaminated material. Perhaps the most effective way to eliminate the need for ocean disposal is to

treat the sediment in question as a resource, and to make use of it in a manner that is both productive and protective of the environment. One option is the use of contaminated sediment as a source of soil for interim and final cover at landfills. Another is the disposal of contaminated sediment in confined, water-based discharge facilities (e.g., Hart-Miller Island, MD or Craney Island, VA).

The impact of the elimination of ocean disposal on ports and harbors is a subject best discussed by other witnesses. The analyses I have seen show that the problem is not simply one of economics. If it were, the increased costs of alternative disposal methods could be passed on to corporations and consumers. However, as we saw in the case of disposal options in the New York District, the facilities necessary to develop alternative disposal techniques may be lacking. In major metropolitan areas like New York, Boston, Baltimore, San Francisco and Los Angeles there is probably insufficient land area for drying several hundred thousand cubic yards of dredged material for use in landfill. Likewise, there may not exist sites where containment facilities could be constructed without damage to benthic environments.

Nonetheless, such options exist and should be studied carefully, on a nationwide basis, before decisions are made not to dispose contaminated sediments in the ocean. To completely rule out ocean dumping overlooks the ability we now have to protect the ocean environment.

Figure 1

Estimated Cost for Clean-up of Great Lakes Sediments:

10 BILLION DOLLARS

$250	Remediation cost per cubic yard
x 1,000,000	Cubic yards at a typical site
Remediation cost per site	**$250 million**
Remediation Sites	**x 40**
Estimated Cost	**$10 billion**

Only "Areas of Concern" as identified by the International Joint Commission are considered. This estimate should be viewed as very preliminary and is subject to change as a function of site-specific issues.